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JOSEPH C. SWIDLER

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A. D. THEOBALD

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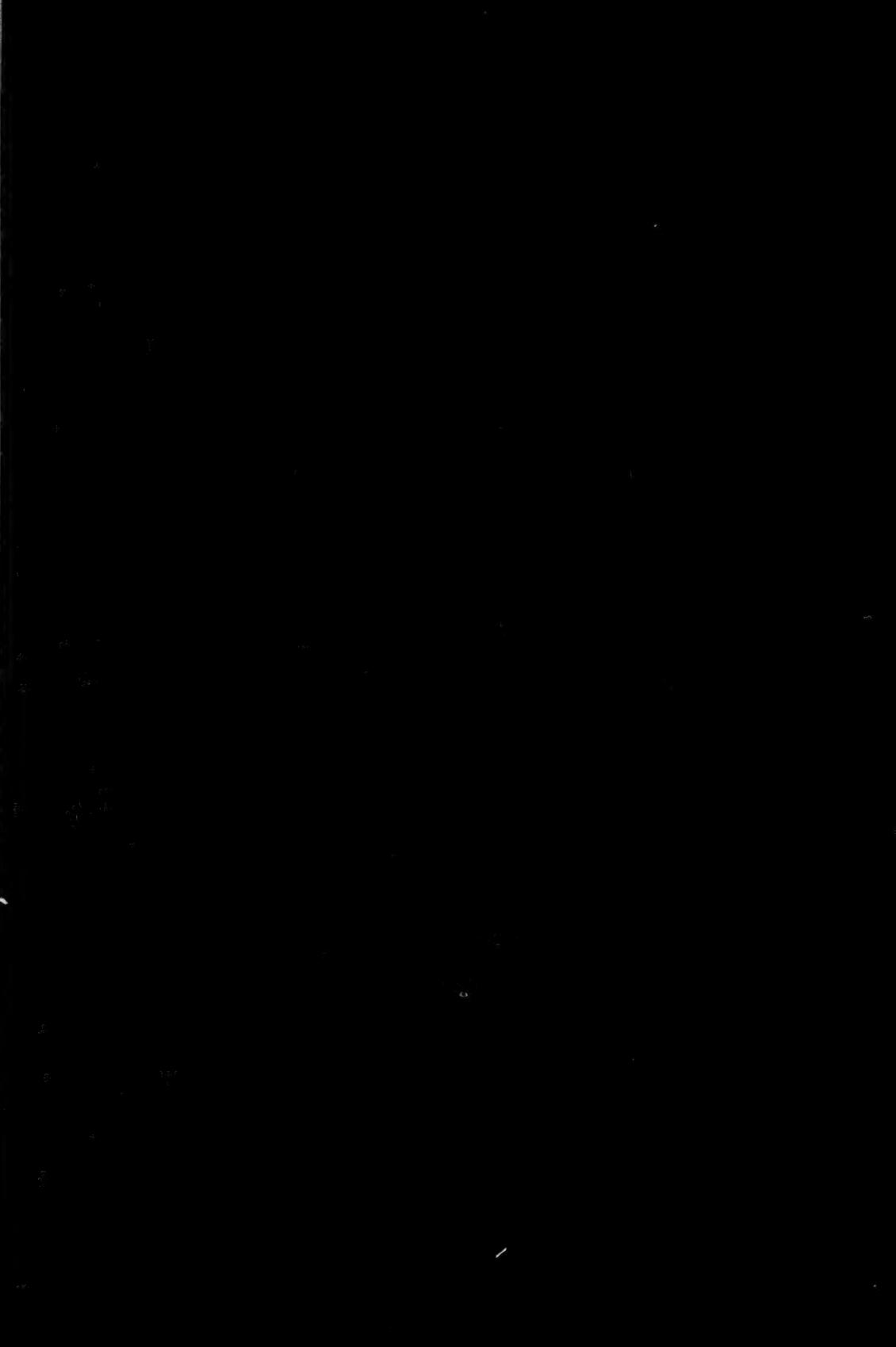
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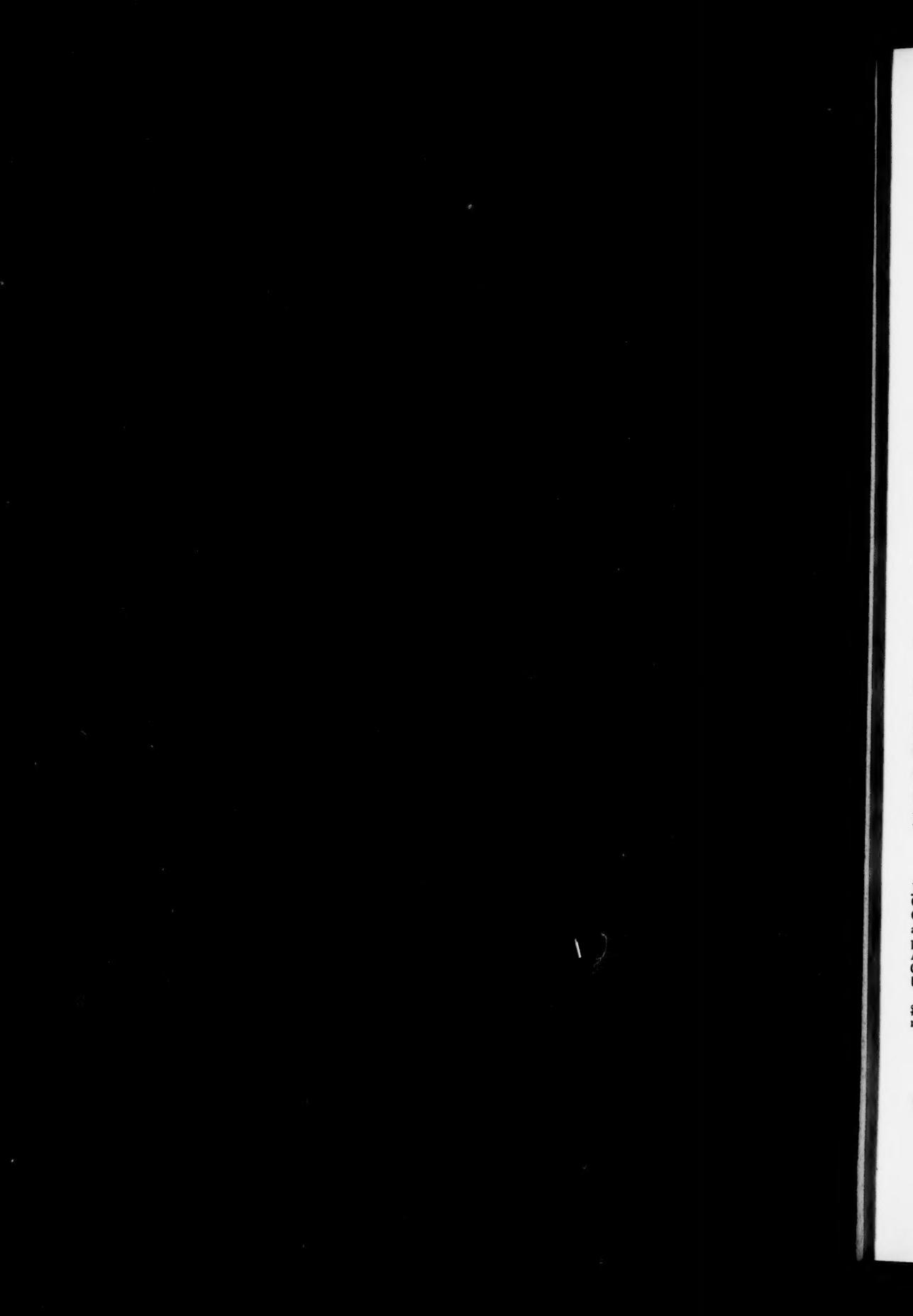


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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

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State of Illinois, } ss.
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Before me, a notary public in and for the State and county aforesaid, personally appeared Dora E. Wallendorf, who, having been duly sworn according to law, deposes and says that she is the business manager of the Journal of Land and Public Utility Economics and that the following is, to the best of her knowledge and belief, a true statement of the ownership and management of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

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Sworn to and subscribed before me this 29th day of September, 1930. DORA E. WALLENDORF, *Business Manager.*

(Seal.) EDWARD B. DAVIDSON. (My commission expires, December 24, 1932.)

THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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Rate Regulation in California: Some Significant Problems Raised by the California Railroad Commission

By JOSEPH C. SWIDLER

THE California Railroad Commission has earned the reputation of being one of the most earnest and able public utility commissions in the country; one whose conclusions have been accorded considerable weight and prestige. Hence the opinion which it recently handed down in the Los Angeles Gas & Electric Corporation case¹ assumes great importance, both for the novelty and the ingenuity of the doctrines enunciated and for the persuasive manner in which these doctrines are presented and supported.² In the belief that this opinion merits the attention of everyone interested in the development of public utility regulation, this paper is written.

In this case the Commission, on its own motion, entered an order reducing by 9% the rates for gas charged by the Company. The proceeding grew out of a

series of investigations by the Commission, also on its own motion, into the rates charged by various utilities which appeared to be earning an excessive return. In determining the central question of whether or not the return was excessive a great many problems arose, not all of equal importance, not all equally emphasized in the opinion. Only the most important and focal of these issues—methods of valuation, overhead cost allowances, holding company fees, going concern value, obsolescent property, and the effect of lowered cost of money on the rate of return—will be discussed here.

Fair Value and Investment Cost

Few politico-economic problems have aroused so much controversy and dissension as the method of valuing public utility property for rate-making pur-

¹ *In re Los Angeles Gas & Electric Co.*, No. 23102, 35 Cal. R. C. R. 443, decided November 24, 1930.

² Commissioner Carr wrote the majority opinion on

behalf of four of the five commissioners, and Commissioner Decoto wrote a vigorous dissent. Together these opinions occupy 65 legal sized sheets.

poses; indeed, few problems have been of such enormous public consequence. The rule of *Smyth v. Ames*,³ that the rate-base must be predicated not on original cost of construction alone, but must take into consideration all other relevant factors, including "the present as compared with the original cost of construction," has never been universally accepted, notwithstanding that the rule has been affirmed by a long and unbroken series of majority opinions by the United States Supreme Court, opinions which differ among themselves only in the relative weight accorded the "present cost of construction."⁴ Most Commissions have found it expedient to conform to the fair value or federal rule, but they have done so with varying degrees of grace and alacrity, and sometimes only under judicial compulsion. The Massachusetts and California Commissions remain unsubdued and rebellious still, contending for valuation based on investment cost. In spite of the tremendous difference in the results attained under these rules because of the sudden increase in price levels following the war, utilities in these two states have litigated the issue with surprising infrequency. This may be attributable in part to the prosperity of the utilities in these states.⁵ As a practical matter it is often impossible for an utility to charge the rates warranted under the federal rule, even if there were no formal

regulation whatever, because of the competition of substitute services and because, in the case of power consumers, of the threat of private plants.⁶ Moreover, these two commissions have been fairly generous in the rate of return they have permitted the utilities to earn, 8% and 9% being the rule rather than the exception. The failure of the companies to insist before the courts on the constitutional right to a fair-value rate-base, since to litigate risked incurring the hostility of the commissions, is, then, a little less surprising than might at first appear. The companies in these states have felt that they fared virtually as well as those in fair-value states, and that there was little point in insisting on abstract rights.

That the Los Angeles Gas & Electric Corporation, or other California companies in the same position, will any longer acquiesce in the application of the investment-cost rate-base is not so certain. One reason may be that, while in the past the authorized rates have tended to yield greater returns than the Commission had anticipated, partly because of expanding volume and partly because of allowances for operating expenses in excess of actual requirements in the future, this increment will tend to disappear as a result of the business depression with consequent slowing up of expansion, closer estimation of allowances for operating expenses and, in general, the

³ *Smyth v. Ames*, 169 U. S. 466, 546 (1898).

⁴ For an extreme position see *McCardle v. Indianapolis Water Co.*, 272 U. S. 400 (1926) which has been interpreted as making spot reproduction the equivalent of fair value. A more moderate position is taken in most of the cases, both before and after the McCardle case; see, for example, *Georgia Ry. & Power Co. v. Railroad Commission*, 262 U. S. 625, 630 (1923); *St. Louis & O'Fallon Ry. v. United States*, 279 U. S. 461 (1929).

⁵ According to statistics of the California Commission, the fixed capital of gas and electric utilities in the state has grown from \$468,688,407 to \$1,185,372,478 in the decade 1918-1928; the aggregate par value of the stocks

and bonds issued by them has grown from \$543,285,594 to \$1,123,658,757, the increase of \$580,373,163 representing \$310,500,627 of bonds, \$219,943,547 of preferred stock, \$49,928,988 of common stock.

⁶ The threat of municipal operation is another factor which may have had some effect. In the uncommon situation of a privately owned company competing in the same territory with a municipally owned plant, the direct competition may not be without effect. Thus, the Commission stated in the opinion in the instant case that the electric department of the Company, in competition with Los Angeles' municipally owned plant, had voluntarily requested permission to lower its rates to meet a reduction of rates by the municipal plant.

application of more refined techniques in adjusting rates to yield a given return. Other factors are the position of the Commission in regard to overhead construction allowances and the lowering of the rate of return, both of which will be discussed later. One additional element may be the psychological effect of reductions in profits, of declining revenues per dollar invested; a return which might have been considered satisfactory before investors had become accustomed to a larger one may be entirely inadequate after investors have come to value, or perhaps have purchased their securities, on the basis of higher earnings.

Precisely what did the Commission do in the Los Angeles Gas & Electric case? It is not strictly correct to say that it ignored the federal rule altogether; what it did was to determine the rate-base under each of the rules,⁷ and set rates calculated to yield a fair return on either base. Whether this concession to the fair-value rule represents a genuine departure in Commission policy, or whether it was used merely to fortify the opinion against reversal by the courts, is difficult to say. Certainly the result would not have been different had the investment cost rate-base alone been used, and, just as certainly, no one who reads the opinion can question the deep antipathy of the Commission toward the federal rule.

The method of arriving at the fair-value rate-base is one of the most significant aspects of the case. The Company had asked for a rate-base of about \$95,000,000, based on hypothetical cost of reproduction at current price levels. The Commission utterly rejected this method of arriving at the cost of reproduction, pointing out that

of the \$35,000,000 spread between the investment cost and the Company's estimate of reproduction cost, less than \$6,000,000 was attributable to changes in price level. Instead the Commission merely "stepped up" the cost of those items which had appreciated in value since the time of construction, to conform to present price levels. The Commission said:

"It is one thing to attempt in a sane and reasonable way to estimate and give effect to changes in prices. It is quite another matter, because there is a change in price levels to devise and utilize formulas and methods for measuring its effect, which result in values and claims of value far in excess of what the property would have cost if current prices had prevailed during its entire life . . .

"Regulatory bodies, such as this Commission, naturally prefer to deal with actualities rather than theories and assumptions. Actual cost may be determined with a high degree of precision; and the effect upon such actual cost of the simple and single assumption that current prices prevailed during the life of the property may likewise be determined with a definiteness sufficient for the purposes of measuring the effect of higher price levels . . . It is deemed a much simpler, safer and more dependable guide than estimates based upon rebuilding the property under a hypothetical construction program under conditions which do not and could not reasonably exist and with far-fetched assumptions which make possible almost any result desired by their designer."

Under the fair-value rule as usually interpreted, the Company's method of arriving at the present cost of reproduction of the plant would have been sustained. This method consists of estimating the cost to reproduce the identical plant by applying current market prices to actual inventories of property "used and useful" in serving the public, applying current wage scales to the estimated amount of labor needed, adding allowances for omissions and contingencies, overhead costs, and going value. Land is taken at the market price of ad-

⁷ The fair value of the property, undepreciated, was found to be \$65,500,000, and the investment cost \$60,704,000.

joining land, without any additional allowance for intangible values.⁸ The Commission contends that the best indication of the cost of reproduction is actual cost, not estimates; that by "stepping up" actual cost to conform to present price levels, a far more accurate result is reached than by the use of estimates particularly as to intangibles. The issue here is whether there is a constitutional guarantee, not only that the cost of reproduction must be given "material weight" in arriving at a final rate-base, but also that it be determined by a given method. If, as is often stated,⁹ the due process clause of the 14th Amendment looks to results and not methods, then certainly an experienced fact-finding body is not prohibited by the Federal Constitution from arriving at the fact of the cost of reproduction by any method not clearly arbitrary; and the method used by the Commission could hardly be described as capricious. In the traditional language of the law, neither principle nor authority would seem to prohibit the determination of the cost of reproduction by reference to actual costs.¹⁰

Admirable as the method used by the Commission may be, the results seem somewhat shocking to one accustomed to the orthodox way of arriving at a

fair-value rate-base. The Commission found a "fair value" of \$65,500,000 and an investment cost of \$60,704,000. For the purpose of better comparing the results with those under the investment cost valuation, however, the fair-value figure was stated *undepreciated*. Reducing this estimate, then, by the amount of the accrued depreciation found by the Commission ("not less than \$7,650,000") we have a depreciated rate-base of \$57,850,000, or almost \$4,000,000 less than the investment cost! It is a little difficult to see why fair value should be so much lower than investment cost, when the former is a product of the latter, "stepped up" to reflect higher price levels.¹¹ While it is true that the Commission allowed much less than the amount ordinarily allowed for overheads,¹² the relative results are unaffected, inasmuch as both valuations were based on the same percentage of overheads.

Overheads

This brings us to a highly novel aspect of the opinion, the exclusion from the rate-base of overheads (in the sum of approximately \$2,750,000),¹³ conceded by the Commission to be a valid charge to capital. The theory on which this

⁸ *Minnesota Rate Cases*, 230 U. S. 352 (1913).

⁹ *Ohio Valley Water Co. v. Ben Avon Borough*, 253 U. S. 287 (1920).

¹⁰ See F. K. Beutel, "Valuation as a Requirement of Due Process of Law," 43 *Harvard Law Review* 1249 (1930), in which the rule of the Ohio Valley Water case is analyzed in some detail. For an excellent discussion of the cases which govern the right of an utility to go into the federal courts to enjoin the order of a state commission, see D. E. Lilienthal, "Federal Courts and State Regulation of Public Utilities," 43 *Harvard Law Review* 379 (1930).

¹¹ The close approximation of the Commission's fair-value to its investment-cost rate-base must be viewed in the light of its statement that of the \$58,000,000 of capital investment in 1929, \$45,000,000 had been invested in the period 1917-1929, which was on the whole a period of high prices. An analysis of the Commiss-

sion's and of the Company's estimates of the cost of reproduction indicates that the principal reasons for the tremendous spread between the two are the use of different commodity price level indexes, and the inclusion by the Company of substantial amounts for such items as Organization and Franchises, Cost of Financing, Promoters' Remuneration, and Going Value, all of which were either greatly reduced or altogether omitted in the Commission's estimate.

¹² Commissioner Decoto in his dissenting opinion showed that the set-up of the majority was based on overheads amounting to only 6.35% of the value of the physical property, excluding land, while the "lowest percentage of overheads that is at all supported by the record in this case is 11.25%."

¹³ See footnote 12. Overheads at 6.35% amounted to \$3,539,922 in the fair-value set-up; at 11.25% the allowance would have been \$6,271,517,—a difference of \$2,731,595.

action was based was "quasi-estoppel," and can best be explained in the Commission's own words:

"In the initial case involving the gas rates of this Company a rate-base was fixed including overhead charges substantially higher than those charged by the Company in preceding years and approximating those now claimed. The Company was thus fully apprised of a basis of assigning to capital certain general charges allocatable in part to capital and in part to operation. Notwithstanding the fact that it was thus definitely advised of the propriety of allocating more of these to capital and less to operation, the company, in subsequently making these splits or allocations, saw fit to allocate on its books the bulk of these to operation much as it had done prior to 1917 . . .

"In the various proceedings before the Commission it reported additions and betterments, as well as operating expenses, based upon its books and the allocations there recorded. The findings of the Commission indicate that determinations as to rates went on the assumption that such allocations were properly made . . . the effect of this long continued practice and course of action has been that the Company has been allowed in the form of operating expense allowances items which it now says should have been added to capital and which it now seeks to add to capital. There is no equity in the Company's claim; and by its conduct and election it has created a quasi-estoppel against now seeking to gain advantage by repudiating its own books and records as well as its position repeatedly taken before this Commission."¹⁴

The exact nature of the overheads was not given, so that discussion of this holding must be in very general terms. From the accounting point of view it seems difficult to justify. If an item is really a capital item, it belongs in the capital account, indeed, should never have been allowed as an operating expense. However, the fact that through mistake it had in the past been treated as

an operating expense, would not, from the same point of view, justify its further treatment as that which it is not, regardless of whose the responsibility for the mistake. It has been suggested that the Commission's justification lies in the supervisory, as contrasted with the judicial, nature of its powers; in the fact that an administrative body, unlike a court, is entitled to use whatever homely weapons come into its hands in enforcing its rules. Conceding that an administrative body requires more flexible controls than do courts, it is still not clear that the Commission should not have used some recognized punitive weapon, rather than resort to what, on this assumption, is tantamount to punishment by what may be called fiat accounting. The rate-base of an utility, whether it represent cost or value, should give as accurate a representation as may be and should not be used as a flexible device for reflecting by appropriate expansions and contractions the quality of behavior of utility management.

Accounting difficulties to one side, however, the Commission's action may not be altogether without justification. If we regard the company's conduct in treating capital items as operating expenses, knowingly and in the face of the Commission's warning, as a recoupment of its capital investment, then this recouped capital ought not to be included in the rate-base. This construction is by no means far-fetched; it has the merit of working justice to the consumer who has already paid the Company an amount sufficient to reimburse it for the outlay in overheads, and who is now being asked to pay a return on these overheads. So regarded, too, there would be no danger of the action of the Commission being interpreted as merely an indirect

¹⁴ It is noteworthy that the Commission allowed the Company to charge to capital \$155,000 for overhead construction costs which had been mistakenly omitted

in the past, but which had not been charged to operating expenses.

method of reducing earnings in the future because of excessive earnings in the past, a practice forbidden in the New York Telephone case.¹⁵

Holding Company Fees

In the matter of the disallowance of holding company fees, the action of the Commission is significant principally as an indication of the increasingly critical attention now being given to the problem of intercorporate relations in general, and to holding company fees in particular. On the record the Commission's action seems unassailable; the fee had been paid for only two years; the evidence showed that during this period no valuable administrative, legal, or engineering services had been rendered; on the contrary, some expenses, as officers' salaries, had actually increased. The problem of the Commission's power to investigate the cost and value of the services performed by the holding company did not arise here, nor did the question of the effect of holding company resources upon the rate of return. This case serves to remind us that the California Commission has probably not changed its mind on these subjects,¹⁶ and that under the grant of power which

¹⁵ *Board of Public Utility Commissioners v. New York Telephone Co.*, 276 U. S. 23, 32 (1926).

¹⁶ As to the first of these problems, in the case of *In re Pacific Telephone & Telegraph Co.*, No. 13795, 33 Cal. R. C. R. 737, 745 (1929) the Commission, in allowing the 1½% fee of the American Telephone & Telegraph Co., made clear that it disapproved the practice of charging fees on a percentage basis, and that it believed the American Company should disclose its costs. See also *In re Western States Gas & Electric Co.*, No. 13332, 24 Cal. R. C. R. 677, 689 (1924). As to the latter problem, see *In re Southern California Telephone Co.*, No. 14420, 25 Cal. R. C. R. 721, 748 (1924), where the Commission makes clear that the lower interest rates which an operating company can obtain through its holding company will "have its effect upon what is a fair return for the services rendered."

¹⁷ *Smith v. Illinois Bell Telephone Co.*, 51 Sup. Ct. 65, decided Dec. 1, 1930. In this case it was held, for the first time, that commissions may base allowances for holding company fees on cost to the parent company

appears to have been made recently by the Federal Supreme Court in the Illinois Bell Telephone Company case,¹⁷ we shall soon see the California Commission carefully examining holding company accounts and inter-company relations, under what constitutional restrictions it is impossible now to foretell.

Going Value

Going value has well been called "the most intangible of the intangible values." Perhaps the reason it is one of the most contentious problems in the field of valuation is attributable to the fact that the issue is as yet largely one of definition of terms. The Company here claimed an allowance of \$9,228,667, and the Commission allowed \$422,866. Obviously the two were not talking about the same thing. An excellent formulation of the type of definition upon which the Company's estimate was predicated was given by Commissioner Decoto in his dissenting opinion:¹⁸

"Going value is not measured alone by the cost of attaching new business. It is a present element in every paying business over and above physical value. It is an intangible element that can be determined only by the judgment and opinion of men eminently qualified by long experience in the design,

rather than value to the subsidiary, and that while the separate entities of affiliated companies may not be wholly disregarded, the Commission may fix rates with a view to "the actual effect of the rates imposed in the light of the utility's situation, its requirements and opportunities." For a discussion of the decision see D. E. Lilienthal, "Recent Developments in the Law of Public Utility Holding Companies," *Columbia Law Review*, February, 1931.

¹⁸ The definitions given by the Supreme Court are very similar. Thus, in the much quoted definition in the case of *Des Moines Gas Co. v. Des Moines*, 238 U. S. 153, 165 (1915) it is described as that "element of value in an assembled and established plant, doing business and earning money, over one not thus advanced . . ." Another equally famous definition, given in *Knoxville v. Knoxville Water Co.*, 212 U. S. 1 (1909) is that it is "an expression of the added value of a plant as a whole over the sum of the values of its component parts, which is attached to it because it is in active and successful operation and earning a return."

construction and operation of gas properties and thoroughly conversant with the particular business."

Commissioner Decoto came to the conclusion that an allowance of 10% of the investment or the value (depending on whether an investment or a fair-value rate-base is involved) was here the minimum compatible with justice and law, and that an allowance of \$10,000,000 would have been justified.

The majority of the Commission, however, have an altogether different, and wholly irreconcilable, point of view. With this vague definition they have neither sympathy nor patience. They seem to feel that going value, complicated amalgam of numerous elements though it be, is capable of being reduced to component elements sufficiently definite and familiar to be dealt with like any tangible element of value, and that it must be so reduced to be included in the rate-base. On analysis of the \$9,228,667 claim of the Company, they concluded that this estimate was based largely on assumed early losses incurred in attaching business and in organizing property and personnel. For both these items, the Commission, consistent with their position on the valuation of physical property, refused to accept estimates based on hypothetical reproduction programs, insisting that the costs actually incurred in the past were the only reliable criteria. On examining these costs, they found that the cost of attaching business had already been amortized in the form of operating expenses lodged

in the New Business Expense account, and that the cost of organizing personnel and property had already been paid by consumers in the form of operating expenses attributed to appropriate accounts. The Commission appears not unwilling that any factor in going value which has neither been capitalized nor amortized shall be allowed in an appropriate account. As to new business expense, they found that the result would not have been greatly different had it been added to capital, providing that, as a corollary, it had been eliminated as an operating expense.

This attitude of the Commission, in the light of their apparent readiness to accept a liberal definition of going value, so long as it is definite, seems to be perfectly fair. Going value, no matter how defined, is a product of purely mundane phenomena, which are subject to isolation and examination. From the fact that estimates of going value often greatly exceed the sum of the component costs assigned as the basis for the allowance, as determined by actual costs "stepped up," it seems quite possible that something of the value of the franchise or of good will,¹⁹ or of highly efficient management, has been allowed to creep in. Of course, anything ascribable to the first two is excluded by the prevailing rule,²⁰ and the efficiency of management although a consideration in fixing the rate of return, is certainly not a capital item. Whether or not the Commission will be upheld by the courts on this matter is highly specula-

¹⁹ John D. Sumner, in an article entitled "Going Value: Its Various Interpretations and Their Validity" (4 *Journal of Land & Public Utility Economics* 59, 61 (February, 1928)), after discussing several court and commission decisions on the subject of going value, came to the conclusion that these illustrative cases showed "the tendency in valuation cases to allow for going value in a sense that is remarkably similar to good will, although it is never given that designation"

²⁰ To the effect that good will, as such, is not allowable, see *Willcox v. Consolidated Gas Co.*, 212 U. S. 19, 52 (1909); *Galveston Electric Co. v. Galveston*, 258 U. S. 388 (1922). For cases holding franchise value cannot be included in the rate-base see *Cedar Rapids Gaslight Co. v. Cedar Rapids* and the *Galveston* case, *supra*. But cf. *United Railways & Electric Co. v. West*, 280 U. S. 234 (1930), *contra*, but distinguishable because of peculiarities of local law involved.

tive. In the latest federal case involving going value, the Circuit Court of Appeals, reversing an order of the New Jersey Board of Public Utility Commissioners denying any allowance for this item, held that the evidence "sustains the value of 10%" of the value of the physical property.²¹ It is true, however, that a novel face is put upon the problem here, inasmuch as the Commission claims that it has made allowance for going value, albeit in the form of operating expenses. In Ohio the rule has long been established that going value is not allowed unless the value or cost is established by direct evidence, the theory being that all other intangibles are included in overhead cost allowances.²² Although the federal courts sitting in Ohio have announced that they do not follow the rule,²³ it has never been declared unconstitutional. Whether the California Commission, in the light of its action on the question of overhead costs, can bring itself within this rule, and if so, can sustain it in the courts, seems somewhat doubtful.

An interesting speculation is introduced by the fact that the Commission did allow \$422,866 for going value. Nowhere is it explained how this figure was derived. It may represent outlays in building up business and organizing property and personnel which had neither been capitalized nor allowed as operating expenses. If so it indicates a noteworthy change in accounting procedure, inasmuch as in the past such outlays

²¹ *Board of Public Utility Commissioners v. Elizabethtown Water Co.*, U. S. C. C. A. 2d (Sept. 22, 1930); P. U. R. 1930 E 373.

²² See *In re Chillicothe G. L. & W. Co.*, No. 302, Ohio; P. U. C. R. 9, 15 (1916). *Portsmouth Gas Co. v. Ohio Public Utilities Commission*, 119 Ohio St. 24, 35, 36 (1928).

²³ *Columbus Gas & Fuel Co. v. Columbus*, 17 Fed. (2d) 630, 635 (S. D. Ohio, E. D.) (1917).

²⁴ The term is one of recent coinage, and with no definite and commonly accepted meaning. It is here

have been treated as operating expenses. Or it may be that there are some other elements of going value which the Commission recognizes. Or can it be that it represents the capitalized "stepping-up" of *operating expense accounts*? If so it is one way of giving the Company the benefit of higher price levels for items charged to operating expenses, but which the Commission thinks might alternatively have been capitalized. From an accounting point of view this device would be anomalous, to say the least.

System Obsolescence

One of the most significant parts of the opinion is the treatment of artificial gas equipment discarded because of system obsolescence.²⁴ Expensive artificial gas plants owned by the Company, highly efficient and in good operating condition, had suddenly been thrown out of service by the discovery of tremendous natural gas wells in California, and the resulting substitution of natural for artificial gas service. Some of this equipment was practically new; all of it had been bought in the exercise of sound business judgment. The significance of the problem lies in the fact that this wholesale substitution of natural for artificial gas equipment is now proceeding apace in innumerable communities. With the discovery of additional sources of natural gas supply, and with the development of high-pressure, long-distance pipe lines, the problem is certain to be critical in the near future almost the country over.²⁵

used to refer to supersession caused by a change in the product or service itself, as distinguished from that caused by changes in the method of making the product or of rendering the service.

²⁵ In the report of Secretary of the Interior Wilbur, as Chairman of the Oil Conservation Board, transmitted to the President on May 28, 1930 (printed in *Natural Gas* to (June, 1930), nine recent and important natural gas pipe lines are listed, serving Kansas City,

(Footnote 25 continued on page 9)

With the position of the utility in this situation it is easy to sympathize. Very often, as the utility points out, so far from being responsible for reckless purchasing, it has acted with model prudence and caution. Indeed, not infrequently such purchases were made with the official sanction of the Commission, or even at its insistence. The Company has had no opportunity to prepare for the metamorphosis by building up depreciation reserves, for not only was it impossible to forecast the change, but even had it been foreseen, the Commission would probably not have approved allowances for possibilities apparently so remote and contingent. Ordinary obsolescence is itself no easy matter to calculate and to provide for through reserves. Certainly such utterly unprecedented and altogether unforeseeable contingencies ought not to be a charge against surplus—if there is one. The change was made to benefit present consumers, who are getting better gas at lower rates; is it then unfair that these consumers bear the loss by amortizing the investment in the unused gas equipment, or by paying a return on this investment?

With this point of view the majority of the Commission is in sympathy, but they answer that, when one talks about care and prudence and public responsibility for the well-being of capital, one talks in the language of prudent investment, and not fair value; that under the

fair-value rule an utility is entitled to a return only on the value of the property used and useful in serving the public; that just as a sudden and unexpected rise in price levels redounds to the benefit of stockholders, so does an unexpected obsolescence of plant equipment rendering it of little value even for stand-by purposes²⁶ redound to their disadvantage. To quote the Commission:

"Under the basis of fixing rates heretofore followed, which essentially is to provide a fair return on money prudently invested, if any part of these were eliminated as operative property it would follow that provisions would be made for the amortization of the money invested in them . . . A different situation is presented when the Company demands a return on the present fair value of its property, for the somewhat doubtful need of all of these plants does have an appreciable adverse bearing upon their value."

The position of the Commission appeals to one as eminently fair and reasonable. More than once in the last decade the only solace of the consumer paying a return on values based on post-war price levels has been that the stockholder was entitled to reap the harvest because he took the risk of loss. Now that losses actually loom on the horizon it may be rather difficult to explain to him why he should bear them. It may be argued that, logic apart, for the consumer's sake the rate-base must be protected in order to continue to attract capital for improvements and extensions. To this the Commission would respond that the fair-value rule, which

(Footnote 25 continued from page 8)

Denver, Memphis, New Orleans, St. Louis, Birmingham, Atlanta, San Francisco, Salt Lake City, Ogden, El Paso; and Monterey, Mexico, as well as innumerable points en route. Among the lines not included in this report is a project now under construction which, it is estimated, will cost \$42,000,000, and carry gas from the Texas Panhandle and Oklahoma to Missouri, Kansas, and Illinois. An editorial paragraph in *11 Natural Gas* 10 (September, 1930) cites a statement made by the Bureau of Mines that the total expenditures for new long-distance lines in 1930, notwithstanding the general business depression, might reach the truly impressive total of \$250,000,000.

²⁶ Claude Brown, Gas and Electric Engineer of the California Railroad Commission, in a paper read before the Pacific Coast Gas Association meeting at Pasadena, California, September 12, 1930 (printed in *11 Natural Gas* 3 (September, 1930) stated that the Kettleman fields in California were the most prolific in the country, at that time producing 550 million cubic feet of gas daily from seven wells, and that it was estimated that "this field will cover 25,000 acres . . . and that it could produce 400 million cubic feet per day for 75 years."

made this whole difficult situation possible, should not have been used in the first place; that where, as in California and Massachusetts, it has really never been used at all, where securities have been issued only in the amount of actual investment, and it is still possible to adopt an investment-cost rate-base without sacrificing the attractiveness of the Company's securities, this should be done; that if the utilities nevertheless insist on the use of a fair-value rate-base, it is not unjust to limit them to a return on the property actually used or useful.

Simply stated the issue is, does it follow of necessity from the fair-value rule that the value of property no longer used or useful because of system, as contrasted with technological, obsolescence must be deducted from the rate-base? The latter was what the Supreme Court referred to when it said that, if an utility fails to charge rates which will provide for depreciation and replacement, "the fault is its own" and that "the true value of the property then employed for the purpose of earning a return cannot be enhanced by a consideration of the errors in management which have been committed in the past."²⁷ As we have already pointed out, for such system obsolescence as we are here considering it is impossible to provide, and "errors of management" are not a proper consideration at all. Conceding that for such obsolescence as may be foreseen and provided for the investor takes the risk, it still remains to inquire whether the same rule applies to supersession caused by new sources of supply.

²⁷ *Knoxville v. Knoxville Water Co.*, 212 U. S. 1, 14 (1909).

²⁸ The Commission might have held with some economic justification, that all owners of private property took the risk of loss from system obsolescence, as a risk inseparable from ownership of such property, just

It may well be urged that while the investor under the investment-cost rule takes no risks which can be provided for before the event or be amortized afterward, the investor under the fair-value rule takes all risks which are foreseeable and may be provided against; but that neither take risks altogether unforeseeable.²⁸ The difficulty with this suggestion is that under wise management all foreseeable risks would be provided for, so that, if losses due to unforeseeable risks were amortized after the loss had occurred, investors under both rules would take identical risks so far as depreciation, whether caused by obsolescence or otherwise, is concerned—a result which might appear to be unfair to investors under the prudent-investment rule, who would get a smaller return for identical risks. May it not be true, however, that although the risks attributable to depreciation are the same, the difference in return reflects merely the risk attendant upon changes in price level? This would be fair enough if in a period of falling prices the rate-base could be reduced in the same manner that it is increased in periods of rising prices. However, this might in fact result in such impairment of the service as to be undesirable from the standpoint of the consumer himself. If the fair-value rule cannot be applied when prices fall below the amount of investment, as the Commission seems to suspect and if the added increment which investors under the fair-value rule are now receiving is not as a practical matter a compensation for any additional risks caused by

as they take the risk that dwindling population may diminish the value of their investment, or that an earthquake may destroy it. This point of view, however, aside from the question of its legal validity, would not relieve the discrimination against investors, under the prudent investment rule as suggested *post*, in that again we would have a case of less return for equal risk.

declining price levels, then the Commission may not be acting unfairly in holding that this increment must be attributed to risks from unforeseeable obsolescence and hence that property rendered non-operating because of such obsolescence must be deducted from the fair-value rate-base.

If the Commission is sustained by the courts in the stand it has taken, it will have a weapon of telling power in compelling utilities, especially gas companies, to abandon the fair-value rate-base, and a weapon which it apparently intends to use on every occasion.²⁹ Whether or not the Commission will be sustained is another question. In precisely its present form the issue seems not to have been passed upon by appellate tribunals; but there are extremely unfavorable dicta by the United States Supreme Court on a closely analogous set of facts in the Pacific Gas and Electric Company case.³⁰ In that case sudden and unpredictable obsolescence of artificial gas plants took place, this time through discovery of a superior process. The question of including such equipment in a fair-value rate-base was not squarely passed upon, but Mr. Justice McReynolds, speaking for the majority³¹ did indicate the necessity of "recompense for obsolescence." This was a case of technological rather than of system obsolescence, and hence not so strong a case from the standpoint of the investor

as the present one. Yet the issue can by no means be said to be foreclosed by precedent.

Cost of Money and the Rate of Return

Among the many other problems raised by the Los Angeles case, the effect of the cost of money on the rate of return deserves comment. The utilities have frequently urged, both before the commissions and in the courts, that an 8% or 9% rate of return was essential to avoid confiscation owing to the high interest rates demanded by investors in utility securities; not uncommonly the company has been able to show that the rate of return urged by some public body protesting a rate increase was actually lower than the return paid by the company itself—discounts, commissions, and brokerage fees considered. The question of valuation aside, clearly a company is entitled normally to a rate sufficiently high to attract capital,³² and the courts are satisfied with no less.³³ On a rising money market, therefore, the companies have maintained that not what capital cost in the past, nor what the company is actually paying in the present, but what is necessary to attract capital in the future, is the measure of their right. This takes for granted that not only as applied to the rate-base, but also as applied to the rate of return, the utilities are entitled to the benefits of rising markets; that not rising commodity levels alone, but also rising money rates, create values to which the investor is entitled.

²⁹ An occasion was created by the Commission shortly after the opinion in the instant case was handed down, in the case of *In re Coast Counties Gas & Electric Co.*, Cal. R. R. C., November 29, 1930. In granting permission for the dismantling of an artificial gas plant by a company which had substituted a natural gas service, the Commission warned the applicant that if in the future it should insist on having its rates fixed on a fair-value rate-base, it would not be permitted to amortize the cost of such property from operating expenses, nor would it be permitted to include the property in the rate-base, but that under an investment-cost rate-base, amortization would be permitted.

³⁰ *Pacific Gas & Electric Co. v. San Francisco*, 265 U. S. 403 (1924); P. U. R. 1924 D 817.

³¹ Justices Holmes and Brandeis dissented.

³² The rate of return necessary to attract capital must, of course, be considerably higher than the prevailing interest rate.

³³ *McCardle v. Indianapolis Water Co.*, 272 U. S. 400 (1926); *Bluefield Water Works etc. Co. v. Public Service Commission*, 262 U. S. 679 (1923).

There is a persuasive parallelism in the effect of commodity levels on valuation and of money rates on the rate of return, and the Commission follows the implications of this parallelism when lower price levels affect valuation. Thus, "just as the assumption that the Company's property was constructed at prices now current increases the actual cost figure, so a similar assumption that the Company was financed on the basis of current money cost or value would reduce the figure of 6.17% [present actual cost] to 5.46%. If the Company is to derive the advantage due to economic changes which raise the value of its property over its actual cost, it should at the same time in fairness expect to suffer any detriment due to economic changes which may lessen the cost or earning ability of money."

The Commission thereupon proceeded to lower the rates to yield (on the basis of the 1930 volume of business) 7.7% on investment cost and 7% on fair value, the weighted average return³⁴ for the past three-year period having been 9.7% and 8.8%, respectively.³⁵

Here again it may be urged that a higher return by attracting investment is as much to the consumer's interest

³⁴ The actual return was a trifle less, inasmuch as the operating results in the past were adjusted for normal temperatures whereas actual weather conditions had been unusually unfavorable.

³⁵ It is to be recalled, however, that the rates set in the past yielded a higher return than had been intended by the Commission.

³⁶ The Commission calculated that had the new rates been in effect in the past year, the Company would have earned 12.8% on its common stock, and 10.6% on its common stock and surplus.

³⁷ See footnote 17.

as to the investor's. To this the Commission's answer is that it is by no means clear that the rate allowed is not ample, in the light of the prosperous condition of the company,³⁶ to attract all the capital which could be used, and that without any depletion of reserves. That this practical argument would have carried weight with the Supreme Court in the past is much to be doubted; that it will have some effect on the court as at present constituted may be regarded, in the light of such recent decisions as that in the Illinois Bell Telephone Company case,³⁷ as not altogether improbable.

Following a denial of a rehearing by the Commission, the Company secured a temporary restraining order from a federal court, and the motion for an injunction will soon be heard.³⁸ Whatever the outcome of this decision before the courts, there is little doubt it will evoke wide comment and discussion; and by its reasoned and vigorous attack on fundamental problems in rate regulation, exert no little influence in bringing the law into closer conformity with economic reality.

³⁸ Following the issuance of a temporary restraining order by the federal district court on December 24, 1930, a motion for an interlocutory injunction was made by the Company on January 2, 1931 before a statutory, three-judge court. The court stated that the injunction would issue on the filing of a \$200,000 bond undertaking to return to the consumers the amount collected in excess of the rates set by the Commission, if the injunction is eventually dissolved and the order held valid. Counsel waived reference to master and agreed that the case should be determined upon the record made before the Commission, thus eliminating all possible delay in deciding the issues of law presented by the record.

Real Estate License Laws in Theory and Practice

By A. D. THEOBALD

THE first state enactment regulating the conduct of real estate agents by means of a license act, or a real estate brokers' law, was passed 13 years ago. Since that time 28 additional states and three Canadian provinces have passed similar laws. In addition, two states¹ require licenses for dealers offering for sale land outside the state boundaries, but do not attempt to regulate brokers operating entirely within the state. Sufficient time has now elapsed and enough experience accumulated to warrant a review of the results of this regulation, to recognize a few of the problems encountered in the administration of the laws, and perhaps to suggest some measures for making them more efficient for their purpose of protecting the public.

The purpose of a real estate license law is to regulate for the protection of the public the practices of those acting as agents for others in real estate transactions. This object is achieved by permitting only those persons or firms to act in this capacity who have been duly licensed by the state. The license laws generally provide (1) that individuals desiring a license must furnish some assurance of their qualification to act as real estate agents, and (2) permit the revocation or recall of licenses of individuals shown to be guilty of specified forms of misconduct. These laws do not apply to all persons in the real estate business and with possible exceptions, which will be discussed later, they have no effect on

the activities of persons who buy and sell real estate for themselves. The license laws can take cognizance only of the actions of those in the real estate business who act as *agents for others*, commonly known as brokers, and the salesmen employed by brokers.

The Basis of Regulation

The question may be raised why the conduct of real estate brokers should be regulated while a number of other occupations are uncontrolled except by the general criminal laws. Even more to the point, why should regulations be set up which in effect bar from the business some individuals who normally have the right to engage in any occupation in which an opportunity presents itself? What distinguishes this mode of making a livelihood from that of college educators, newspaper men, automobile salesmen, or farmers? The answers to these questions justifying regulation of the conduct of real estate brokers are also the bases on which the laws have been held to be constitutional as being properly within the field of the police power of the states.

Three main characteristics of the business of real estate dealer are advanced to justify the regulation of his conduct and the elimination of some individuals from the business. First, to perform his duties he must possess expert knowledge because of the legal aspects of real estate transfers and financing operations and because of the increasing complexity of urban structure making correct valuations more difficult.

¹ Indiana and Vermont.

"Where the occupation is one of which it can be fairly said that those pursuing it should have certain particular qualifications, it is within the power of the legislature to exact reasonable assurances of those pursuing the occupations that they do possess these qualifications. The most familiar illustrations of this are the qualifications of preliminary training and learning required of professional men, such as lawyers, physicians, dentists, pharmacists, and architects."²

Secondly, real estate agents act in a fiduciary capacity. It is the duty of the real estate broker in his agency function to negotiate transactions in his client's best interest.

"A real estate agent acts for others and in a more or less confidential and fiduciary capacity. As a result, there is particularly required of him . . . honesty and truthfulness, and the legislature has the right to require some assurance of their possession by everyone following the occupation."³

"The real estate broker is brought by his calling into a relation of trust and confidence."⁴

Finally,⁵ the business is one which has been the medium of a considerable amount of fraud.

"Constant are the opportunities by concealment and collusion to extract illicit gains. We know from our judicial records that the opportunities have not been lost. With temptation so aggressive, the dishonest or untrustworthy may not reasonably complain if they are told to stand aside. Less obtrusive, but not negligible, are the perils of incompetence."⁶

Title intricacies, difficulties in ascertaining the quality of construction or possibilities for income, lack of understanding of implications contained in the technical language of documents, and ignorance of financial and credit arrangements have proved to be traps for the unwary or uninformed. The files

of real estate commissions and better business bureaus, as well as court records, show that real estate transactions have been too frequently tinged with fraud.

Under this last basis comes the provision in most of the laws for revocation of licenses for "making any substantial misrepresentation, or . . . false promises . . ." Most of the complaints and revocations arising under these clauses result from misrepresentations and false promises to purchasers rather than to sellers, whom the brokers represented. The brokers involved did not stand in a "relation of confidence and trust" to these complainants nor did they owe them expert knowledge.

From the social point of view the elimination of fraud would seem to be sufficient justification for real estate license laws. However, it may be doubted whether the courts would uphold them in the first instance on this basis alone, without the fiduciary and expert knowledge aspects. In theory the victim has civil recourse for fraud outside the license law, and in most other lines of business this is considered sufficient to discourage fraud.

With reference to the fiduciary and expert knowledge aspects in actual practice, the question may be raised whether the majority of men in the real estate business do not emphasize the selling angle of their activities rather than the "confidential, expert adviser" aspect. Do real estate men as a body consider that they are paid to serve the best interests of their clients by first finding what those interests are and then confidentially informing the client as to the best course of action, or do they be-

² *Riley v. Chambers*, 185 Pac. (Cal.) 855 (1919).

³ *Ibid.*

⁴ *Roman v. Lobe*, 243 N. Y. 51 (1926).

⁵ For a discussion of the bases of real estate license

laws see Nathan William MacChesney, *The Principles of Real Estate Law* (New York: Macmillan Company, 1927), p. 770.

⁶ *Roman v. Lobe*, *supra*.

lieve that they are primarily concerned with finding a buyer on the seller's terms?

If the real estate agent is only a salesman and is licensed only because his business has been "the medium of considerable fraud", then possibly the automobile salesman and the magazine subscription salesman should also be licensed. The reason for difference in treatment lies in the larger amounts involved in real estate transactions and the social effects of fraud in discouraging realty investments and possibly in altering the pattern of our cities. Fortunately a growing recognition of the importance of their fiduciary, as well as their selling, function is to be noted among real estate men. Real estate license laws may themselves give impetus to this movement by barring from the business those who do not possess the necessary qualifications. Much depends on the provisions of the laws and the manner in which they are enforced. If they are successful in eliminating fraud and in raising the qualifications of the men in the business, so that the whole group is able to perform other functions in addition to finding customers, the laws will have been justified.

Extent of Real Estate License Law Regulation

In 1917 the first real estate license law was passed in California. This law, however, was held to be unconstitutional⁷ by the Supreme Court of California because certain provisions were

considered to be special legislation. The California legislature enacted another law in 1919 which has been tested and upheld by the courts.⁸ Tennessee and Oregon also passed real estate license laws in 1919. Since that time one or more states have been added almost every year.

Of the 29 real estate license laws which have been enacted 26 are now in effect.⁹ Three states¹⁰ formerly had such laws but no longer enforce them. In 1925 certain features of the laws of both Kentucky¹¹ and Oklahoma¹² were held unconstitutional by state courts and as a result Kentucky repealed its law in 1926 and Oklahoma ceased to enforce its regulations. In Tennessee the state-wide law was repealed by the legislature in spite of the fact that this particular act was upheld by the United States Supreme Court.¹³ The original law was later repassed but made applicable only in Shelby County, containing the city of Memphis.¹⁴

The population of the 26 states now having real estate license laws in force is 79,072,818, or 64.4% of the total population of the United States.¹⁵ The laws appear to be unusually popular in the larger states, for of the 15 largest states in point of population only five do not have such acts in force. Possibly this may give a clue to the conditions which have called forth this legislation. The states with large populations are, in general, those having the largest concentration of urban population. Cities,

⁷ *Ex parte Raleigh*, 171 Pacific 950 (1918).

⁸ *Riley v. Chambers*, *supra*, n. 2.

⁹ The states now enforcing these Acts, with the years in which they went into effect are: Alabama (1928), Arizona (1921), Arkansas (1929), California (1919), Colorado (1925), Delaware (1927), Florida (1923), Georgia (1925), Idaho (1921), Illinois (1922), Iowa (1930), Louisiana (1921), Michigan (1920), Montana (1921), Nevada (1920), New Jersey (1921), New York (1922), North Carolina (1927), Ohio (1925), Oregon (1929), Pennsylvania (1930), Utah (1921), Virginia

(1924), Washington (1925), Wisconsin (1920), Wyoming (1921).

¹⁰ Kentucky, Oklahoma, Tennessee.

¹¹ *Rawles v. Jenkins*, 212 Ky. 287 (1925).

¹² *Ex parte James H. Pope*, 242 Pac. 290 (1925).

¹³ *Bratton v. Chandler*, 260 U. S. 110 (1922).

¹⁴ Joseph K. Brittain, in volume on General Real Estate Topics, 1925 *Annals of Real Estate Practice* 302 (Chicago: National Association of Real Estate Boards).

¹⁵ Population figures are taken from *United States Daily*, November 24, 1930, p. 3.

particularly those growing at a rapid rate, afford the greatest amount of real estate activity and also opportunity for chicanery. This is attributable largely to the considerable amount of subdivision activity likely to be found in such cities and, as will be seen later, a large proportion of the total number of cases coming to the attention of license law commissions arise out of subdivision transactions. The city real estate men are also organized in real estate boards to a greater extent than are the brokers in rural communities, and, in the main, the organized portion of the business has favored real estate license laws.¹⁶

The Nature of Real Estate Brokers' Regulation

Most of the brokers' license laws have been patterned after the model MacChesney Act for a State Real Estate License Law. This Act was first prepared in 1914 by Nathan William MacChesney, General Counsel for the National Association of Real Estate Boards.¹⁷ In 1927 its author revised the Act somewhat after studying the operation of the law in states where it was being enforced and observing cases where its legality had been tested.

The 1927 Act contains 16 sections. Space forbids analysis of them all in detail. Therefore the substance of the Act will be indicated in summary fashion before turning to a discussion of several of its more important provisions. The 1927 Act¹⁸ makes it unlawful for any person or firm to act as a real estate broker or salesman without a license, and defines real estate brokers and salesmen. Provision is made for appointment of an enforcing commission by the gover-

nor. Only trustworthy and competent persons are to be granted licenses, and a choice of clauses is included according to which no definite test of competency is provided for or the commission may be either permitted or required to determine competency by examination. The procedure for securing licenses also includes provisions for furnishing a bond. The license granted upon fulfillment of these conditions is of a temporary nature and subject to recall. If a complaint is received within a period of six months after a license is granted, the commission is permitted to re-open the question of honesty and competency. If proof of the proper qualifications is not then satisfactory, the license is recalled, with the burden of proof of his honesty resting on the licensee. This is in contrast to an action to revoke a license which is the procedure when that licensee has been registered for more than six months. Causes for suspension or revocation of licenses are given in detail. Original and renewal fees for brokers and salesmen are established. Non-resident brokers and salesmen may be registered provided they maintain offices in the state and file consents that suits and actions may be commenced against them by service of process or pleading on the secretary of the commission. Lists of licensees and all persons whose licenses have been suspended or revoked within the year are to be published semi-annually. Penalty for violation of the Act is fixed at a maximum fine of \$500 or imprisonment for six months, or both.

Although most of the states have closely followed the model MacChesney

¹⁶ In Oklahoma the Oklahoma State Real Estate Association was first organized for the purpose of securing the passage of the license law. Thomas Thane Smith, "The Real Estate Brokers' License Law and Its Application," a thesis submitted to the faculty of the

School of Commerce of Northwestern University in partial fulfillment of the requirements for the degree of Master of Business Administration, May 16, 1924, p. 10, footnote 2.

¹⁷ MacChesney, *op. cit.*, p. 799.

¹⁸ *Ibid.*, pp. 801-816.

Act, a number of variations have been designed to meet local conditions or to correct supposed defects revealed by the operation of the law elsewhere. Several of these changes will be treated in connection with the following discussion of specific regulations and others will be reserved for treatment in the second installment of this article.

Persons to Be Regulated

The MacChesney Act states that,

"A real estate broker within the meaning of this Act is any person, firm, partnership, copartnership, association or corporation, who for a compensation or valuable consideration sells or offers for sale, buys or offers to buy . . . for others, as a whole or partial vocation."

A real estate salesman is defined as one who

". . . for a compensation or valuable consideration is employed either directly or indirectly by a real estate broker, to sell or offer to sell . . . as a whole or partial vocation."

A subsequent paragraph states that, "one act for a compensation . . . shall constitute the person . . . a real estate broker or a real estate salesman within the meaning of this Act."

Some of the laws¹⁹ do not contain this last provision about one act. However, it has been held in certain court cases that the use of the plural, "others," in the definition of a broker means that the defendant, in order to come within the meaning of the Act, must be shown to have completed more than one transaction. This would seem to be a good example of legal hairsplitting and to be rather unimportant but it does raise an administrative problem. Since most

cases come before the real estate commission through complaints of individual members of the public, in states where this ruling was made it would be impossible to take action unless at least one other case were already on file. Probably only a small percentage of the transactions which warrant action ever come to the attention of the commissions. There might be very little doubt, in the face of the evidence submitted, that the person complained of was operating in such a manner that he should be definitely excluded from the real estate business. However, years might elapse before the necessary additional case appeared, or the defendant might settle the least important of two cases already on file and thus practically prevent prosecution.

Some states²⁰ have met this situation by adding the statement that one act shall cause a person or firm to be considered a broker. Others²¹ have achieved substantially the same end by inserting "for another" or "for another or others" instead of simply "others." The Iowa law is unique; while it defines a real estate salesman, it gives no definition of a real estate broker. Apparently the definition originally proposed was thought to be unsatisfactory and was struck out, and in the rush of passing the law no substitute was inserted.

The activities of some of the more predatory subdividers in many cities have raised a still more important question as to precisely who may be brought under the jurisdiction of the license laws. A great many complaints and undoubtedly a great deal of chicanery have characterized the operations of some subdividers who own, or at

¹⁹ Delaware, Illinois, Michigan, Montana, New Jersey and North Carolina.

²⁰ Alabama, Arizona, Arkansas, California, Idaho, Nevada, Ohio, Pennsylvania, Utah, and Wyoming. Montana specifically exempts a person engaging in a

single transaction and not holding himself out as carrying on the business of real estate broker.

²¹ Colorado, Florida, Georgia, New York, Oregon, Washington, and Wisconsin.

least have some interest in, the land they are selling. However, such operators are not included in the MacChesney Act which, as it is worded, applies only to those selling for others.

Several interesting attempts have been made to meet this difficulty. A few states try to make certain of including at least the subdivision salesmen within the purview of the act. Thus Arkansas defines a real estate salesman as one who

" . . . is employed, . . . by a real estate broker or *property owner* engaged in the real estate business as a whole or partial vocation . . ."²²

Illinois seems to cover this status of a subdivision owner by first stating:

"The provisions of this Act shall not apply to any person . . . who as owner or lessee shall perform any of the acts aforesaid with reference to property owned or leased by them, or to the regular salaried employees thereof . . . where such acts are performed in the regular course of, or as an incident to, the management of such property and the investment therein . . . and not in connection with a *whole or partial vocation* of selling or offering to sell . . ."

By excepting those to whom the act does not apply, the legislature seems to have intended to include among those requiring a license subdividers whose "whole or partial vocation" is certainly the sale of real estate. However, this provision seems to be inconsistent with the definition of real estate broker as one who acts "for others." Unfortunately, perhaps, for the administration of the law, few cases in Illinois have tested the meaning and constitutionality of the

²² Illinois and Pennsylvania have similar provisions.

²³ Alabama, Colorado, Delaware, Iowa, North Carolina, Wyoming. The laws of Arizona, California, Georgia, Michigan, New Jersey, New York, Ohio, Oregon, Pennsylvania and Wisconsin expressly state that the employing broker must be licensed. All licensees are classed as brokers in Idaho, Montana, and Washington.

license law. No court of final jurisdiction has determined the precise meaning of this clause.

In some states²⁴ where the license law defines as salesmen only those persons who have an employing broker, real estate commissions attempt to control the activities of subdivision owners and their salesmen by requiring all salesmen's licenses to be under an employing broker's license.²⁴ In order to have his salesmen licensed, the subdivider must either take out a broker's license himself or designate some member of his organization to be licensed as a broker. This gives the commission some control over the activities of the organization since revocation of the broker's license would probably entail much unfavorable and undesirable publicity. However, there is some question as to whether the subdivider who refused to be licensed could be prosecuted under the criminal provisions of the act. It might be insisted that the salesmen were really acting under the definition of a broker in selling for others and should be licensed as brokers. The courts may reasonably hold that as an owner the subdivider need not have a license and that his agents are entitled to brokers' licenses. If this should be the interpretation, then salesmen, licensed as brokers, might have their certificates revoked for unworthiness, but the general merchandising policy of subdividers could not be regulated by real estate commissions.

There seems to be little question²⁵ but that the sales policies of some subdividers are as anti-social as those in any

²⁴ See 1925 *Annals of Real Estate Practice*, volume on General Real Estate Topics, 387-390.

²⁵ 1925 *Annals of Real Estate Practice*, volume on General Real Estate Topics, pp. 388-390. See also the *Annual Report*, Real Estate Department, Chicago Better Business Bureau, (issued June, 1930) pp. 5-18; and H. Morton Bodfish, "The Free-Lot Subdivider," *Journal of Land & Public Utility Economics* 187-198, 285-292 (May and August, 1929).

other field of the real estate business. The purpose of the foregoing discussion is not to show that subdividers should not be regulated but that under most of the present license laws it is, in the last analysis, almost impossible to make this regulation completely effective. If the license laws were amended to include regulation of subdivision sales where the subdivider has an interest in the land and is not acting entirely as an agent, the objection would undoubtedly be raised that such control would be unconstitutional, on the ground that the state has no power to control the disposition of real estate by the owner.²⁶ However, the law might be drawn so as to indicate clearly its intention to regulate the manner of carrying on a business which has been the medium of much fraud and is also of great public concern, and not to hinder the ordinary property owner in selling his home or place of business.

Georgia has covered this problem of controlling the conduct of subdivision operators by amendments to the original license law. In 1929 the definition of a real estate broker was made to include:

"Any person, firm or corporation subdividing a tract of land into twenty (20) or more lots, or offering for sale a tract of land already subdivided into twenty (20) or more lots, where such person, firm or corporation sells or offers any of said lots for sale through salesmen, whether such salesmen be regularly or occasionally employed and whether they be paid salaries or commissions."

As yet the constitutionality of this provision has not been tested.

Legitimate subdividers would favor such regulation, just as the organized real estate groups have on the whole

favored the general principles of real estate license laws.²⁷ Such regulation would not injure the ethical subdivider but rather would aid him by reducing the hardest type of competition he has to meet—that of the operator who thrives on misrepresentation to the ignorant and unwary, and practices fraud on those financially unable to seek their legal remedies.

The possibility exists that, in some courts at least, that part of a real estate license law which does not depend for its justification on the fiduciary or agency capacity of the broker may be held unconstitutional. This cannot be said with certainty. Other bases for justifying these laws have been found, for all of them contain provisions for regulating acts not related to the fiduciary capacity. Possibly, since license laws have been adopted in many states and their general theory tested and approved so often, the courts may now be prepared to extend their interpretation still further. Such an outcome, however, would be much affected by the manner in which the case was presented. Particularly important would be the emphasis upon regulation of a business instead of interference with an owner's right to sell his real property.

Educational and Competency Tests for Registration

One of the most important developments in real estate license laws is examination to determine the competency of applicants. Some of the regulations regarding examination are mandatory, while others are only permissive. The laws of the various states may be classified in four groups. First, certain states require only certification of the appli-

²⁶ MacChesney, *op. cit.*, p. 802, footnote 1.

²⁷ It is said that in Massachusetts and Rhode Island proposed license laws were opposed by the real estate boards. (1925 *Annals of Real Estate Practice*, volume on

General Real Estate Topics, pp. 302-3.) One of the reasons for the opposition in Massachusetts was the fact that the proposed bill exempted real estate developers and their salesmen (*Ibid.*, p. 387).

cant's character as to honesty, integrity, and trustworthiness, with no mention of competency.²⁸ Here it seems impossible for the licensing authorities to require examinations. Second, a few states require that licenses be issued only to those competent to transact real estate business so as to safeguard the interests of the public, but permit this to be shown by certification from citizens in the applicant's county and make no provision whereby the commission may require additional proof.²⁹ Third, some of the laws permit or require the Commission to demand proof of the applicant's competency in addition to certification thereto, but do not mention either an oral or written examination. In these states the commission seems to have the power to require that the applicants pass a written examination.³⁰ Finally, a few, but growing number of, states require that competency be established by a written or an oral examination, or both, with a written one expressly stipulated in several instances.³¹

The type of examination toward which the states are tending is shown by the following clause from the California Act:

"In addition to proof of honesty, truthfulness and good reputation of any applicant for a license, the real estate commissioner must ascertain by examination that such applicant . . . has appropriate knowledge of the English language, including

²⁸ Arizona, Idaho, Illinois, Pennsylvania, Washington.

²⁹ Arkansas, Montana.

³⁰ Alabama, Wisconsin, Iowa, Delaware, Georgia, North Carolina, Oregon, and Wyoming. Iowa is including a few questions in the application form. North Carolina hopes to put through an amendment in the near future requiring a written examination. In Florida the commission is empowered to use a written examination as soon as one is prepared. Alabama and Wisconsin are actually using a written examination.

³¹ Colorado, California, Michigan, New Jersey, New York, Ohio. The California, Colorado, New Jersey, and Ohio requirements apply to both salesmen and brokers. Only brokers are included in Michigan and New York.

³² The following section of the Ohio law is interesting as showing the educational influence of the organized

reading, writing, spelling, elementary arithmetic, a fair understanding of the rudimentary principles of real estate conveyancing, the general purposes and general legal effect of deeds, mortgages, land contracts of sale, and leases, of the elementary principles of land economics and appraisals, and a general and fair understanding of the obligations between principal and agent, of the principles of real estate practice and the canons of business ethics pertaining thereto, as well as of the provisions of the California real estate act"

The provisions in the other laws of this class are similar, but less detailed.³²

In those states using written examinations the requirements are attaining rather high standards. In California, for example, the degree of preparation necessary to answer the questions satisfactorily would compare favorably with that given by one or possibly more courses of collegiate rank.³³

If one of the justifications of license laws is the special knowledge required of a real estate broker, then a requirement that the applicant prove his competency before being granted a license does not seem unreasonable. However, this provision in a state law proposed to be passed for the first time might make its acceptance much more difficult, and still other reasons may be advanced for believing that it may well be reserved for later amendment of the act.

bodies of real estate men and possibly the part which they have played in securing the passage of license laws. "The Board shall from time to time promulgate such canons and cause them to be published in printed form; but for the purpose of the first examination held hereunder, and until the first such publication is made, the canons adopted by the National Association of Real Estate Boards shall be taken as the basis of such examinations."

³³ Examples from a California brokers' examination: Why is it necessary to disclose to both principals in an exchange that both sides are paying commission?

Why is agent correctly charged to know the science of land evaluation?

Are deeds to real property valid when duly executed except as to delivery, but to be delivered upon the death of the grantor? Explain your answer.

"It is my opinion that the law in any given State in the first instance at least should be passed without the addition of educational qualifications, so that the principle may be first established with the right of every one in the business independent of educational qualifications, if they have the other requisites, to continue in the business, and then insert the educational test only after the law has been sustained by the Supreme Court of the State in which passed."³⁴

That the examinations are effective in keeping at least some incompetents out of the business is shown by the following quotation:

"About 45% of all persons examined failed to pass, and under the plan of education examination, which is now being strengthened in California, the number of brokers entering the business appears to be falling."³⁵

As to New York it was reported,

"The weakness of our law is that thousands of incompetent brokers got 'under the tent' before qualifying examinations were required. What proportion of our licensed brokers could pass the examinations now required of new applicants? I doubt if 50% of them could make the required 70% in any such an examination."³⁶

Surety Bonds as Prerequisites for Registration

The model MacChesney Act requires that an applicant for a broker's or sales-

man's license furnish a bond of \$1,000 running to the state. In practice the amounts of these bonds vary greatly from state to state,³⁷ and some states have no bond requirement.³⁸

The purpose of the surety bond is to help insure recovery of money lost by persons who have been defrauded in real estate transactions by dealers registered under the Act. Sometimes the proceeds of the fraud have been dissipated and recovery under the civil laws of the state is impossible because of insufficient resources on the part of the real estate broker or salesman. The bond constitutes a fund to repay those who can properly prove their claims. In a number of cases³⁹ the sureties under the bonds have been held liable to defrauded persons. While the enforcing officers of one state⁴⁰ consider the bond ineffective, general opinion⁴¹ regards it as desirable.

This article has discussed the purpose of real estate license laws and described and analyzed some of the more important features of the laws adopted in the various states. In a subsequent article some of the problems met in administering the acts will be considered.

Idaho, Montana, Washington, \$1,000, with all licensees classed as brokers; California, \$2,000 for brokers only; Ohio, \$1,000 for brokers only; Oregon, \$2,000 for brokers and salesmen; Wyoming, \$1,000 for both brokers and salesmen; Nevada and Utah, \$1,000 for brokers only; Virginia, \$1,000; Louisiana, \$1,000 per thousand of population of the parish in which the applicant lives.

³⁴ Alabama, Arkansas, Delaware, Florida, Illinois, Indiana, Iowa, Michigan, New Jersey, New York, North Carolina, Pennsylvania, Wisconsin.

³⁵ *McIntosh v. Clarke*, 282 Pac. 554 (1929); *Texas Co. v. Mattison*, 125 So. 147 (1929).

³⁶ Willaman, *op. cit.*, p. 69.

³⁷ *Idem.*, pp. 72-76.

³⁴ MacChesney, *op. cit.*, pp. 806 ff.

³⁵ Glenn D. Willaman, "Real Estate License Law Legislation," 1928 *Annals of Real Estate Practice* 69.

³⁶ *Idem.*, p. 74. In this connection it should be noted that in all states requiring a written examination persons already licensed are permitted to renew their licenses without passing the examinations required of new applicants.

³⁷ Arizona, \$2,500 for both brokers and salesmen;

Telephone Consolidation Under the Act of 1921

By STUART DAGGETT

IN spite of the free discussion of railroad consolidation which has occurred since 1920, the character and effect of the federal statute of 1921 relating to the consolidation of telephone companies has been largely neglected. This act, nevertheless, expresses a congressional view that is significant, and its results merit attention. It is the purpose of this article to examine the extent of telephone consolidation under the permissive clauses of existing law, and to make certain observations concerning the motive, character, and method of financing of the telephone mergers which have occurred during the past nine years.

What are the terms, and what was the congressional history of the telephone consolidation act? The statute referred to was passed in June, 1921, as an amendment to section 407 of the Transportation Act of 1920. In the form finally adopted it constitutes paragraph 9 of section 5 of the Act to Regulate Commerce, and reads as follows:

Upon application of one or more telephone companies for authority to consolidate their properties or a part thereof into a single company, or for authority for one or more such companies to acquire the whole or any part of the property of another telephone company or other telephone companies or the control thereof by the purchase of securities or by lease or in any other like manner, when such consolidated company would be subject to this Act, the commission shall fix a time and place for a public hearing upon

such application and shall thereupon give reasonable notice in writing to the governor of each of the States in which the physical property affected, or any part thereof, is situated, and to the State public service commission or other regulatory body, if any, having jurisdiction over telephone companies and to such other persons as it may deem advisable. After such public hearing, if the Commission finds that the proposed consolidation, acquisition, or control will be of advantage to the persons to whom service is to be rendered and in the public interest, it shall certify to that effect; and thereupon any Act or Acts of Congress making the proposed transaction unlawful shall not apply. Nothing in this paragraph contained shall be construed as in any wise limiting or restricting the powers of the several States as now existing to control and regulate telephone companies.¹

The congressional history of the Act just cited was brief. On April 28, 1921, Senator Frank B. Willis of Ohio presented to the Senate a memorial previously adopted by the General Assembly of the State of Ohio. This document declared that public interest demanded the elimination of dual telephone service and the unification of the service of competing telephone companies, and called upon Congress for appropriate legislation.² Senator Willis introduced a bill on the same day to permit the consolidation of telephone companies,³ and Mr. Graham of Illinois followed on May 24 in the House of Representatives with a proposal for similar legislation.⁴ Reports were submitted by the Senate Committee on Interstate Commerce on May 26,⁵ and by the House Committee

¹ 42 Stat. at Large 27, Chap. 19, June 10, 1921.

² 61 Congressional Record 745, 67th Congress, 1st Session, Pt. 1, April 28, 1921.

³ *Ibid.*, p. 747.

⁴ *Ibid.*, Pt. 2, p. 1718, May 24, 1921.

⁵ 67th Congress, 1st Session, *Sen. Rep. No. 75*, Ser. b-7918.

on Interstate and Foreign Commerce on May 31.⁶ The form of legislation laid before both Senate and House at this time was substantially that of the original House draft, and with slight amendments, and after one day's debate in each Chamber,⁷ the law was passed by a party vote.⁸ The President's signature was affixed on June 10. So far as the record shows there was no active opposition in Congress to the pending bill, and none outside, although some hearings were held at which both Bell system and independent telephone operators were represented.

Summarizing briefly the arguments for and against the Willis-Graham Act of 1921, we find that the principal apprehensions entertained were: first, that it would foster a monopoly which, on general grounds, would be contrary to the public interest; second and more particularly, that in the process of consolidation one company might pay an unreasonable sum for the properties of another in the expectation of charging a sufficient rate to make the investment profitable; and third, that the regulatory authority of State governments might be restricted by the powers granted to the Interstate Commerce Commission. As against these objections it was stated that in about 1,000 of the 21,000 exchange points in the United States there were two local exchanges. Such dual operations were said to impair the financial position of the operating companies, rendering them unable to market their securities and to give service which the public had a right to expect. Moreover, from the standpoint of operation, double systems were notori-

ously expensive, inefficient, and annoying to the users; and regulated monopoly offered far greater possibilities than any form of competition. These arguments were not new. It is, however, interesting to recall them, and in some measure to compare legislative expectations in 1921 with results of the nine years' experience through which the country has passed.

Let us first return for a moment to the text of the law of 1921 as printed in the opening paragraphs of the present article. The reader will observe the sweeping character of the language used. The purpose was, particularly, to exempt telephone companies engaged in interstate commerce from the inhibitions of section 7 of the Clayton Law. And the Act accordingly covers the consolidation of telephone companies: (1) by merger of several properties into a single company; (2) by acquisition by one telephone company of the whole or any part of the property of another telephone company; and (3) by acquisition by one telephone company of control over another telephone company (a) by purchase of securities, (b) by lease, (c) in any other "like manner." It is evident that the authority given includes all ordinary methods of consolidation; and it is worth observing, in view of the distinctions drawn between consolidation and acquisition of control in the case of railroad mergers, that in telephone consolidations the different practices mentioned are all equal before the law.

One hundred and eighty-eight consolidations of properties have been accomplished between 1921 and 1929, under the permissive clauses of paragraph 9.⁹

⁶ 67th Congress, 1st Session, *House Rep. No. 109*, Ser. 7920.

⁷ 61 *Congressional Record*, Pt. 2, pp. 1982-1994, June 1, 1921; *Ibid.*, p. 1999, June 2, 1921.

⁸ The test vote in the House on a motion to recommit was 195 in favor of the passage of the bill, 97 opposed, 139 not voting. There was no record vote in the Senate.

⁹ Vols. 70 to 154, *Interstate Commerce Commission Reports*. One consolidation application was denied during the period under consideration. With this exception the number of consolidations accomplished is also the number of consolidations for which permission to merge was asked.

TABLE I. NUMBER OF TELEPHONE CONSOLIDATIONS AND SUBSCRIBERS INVOLVED, BY YEARS, 1921 TO 1929.

| Year | 1-2000 Subscribers | | 2001-4500 Subscribers | | Over 4500 Subscribers | | Total | |
|---|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|
| | Number of Consolidations | Number of Subscribers | Number of Consolidations | Number of Subscribers | Number of Consolidations | Number of Subscribers | Number of Consolidations | Number of Subscribers |
| 1921..... | ..... | ..... | 1 | 2,315 | 3 | 174,935 | 4 | 177,250 |
| 1922..... | 4 | 1,878 | 1 | 4,435 | 2 | 21,950 | 7 | 28,263 |
| 1923..... | 13 | 10,748 | 2 | 5,929 | 2 | 101,792 | 17 | 118,469 |
| 1924..... | 13 | 9,687 | 1 | 2,161 | 6 | 227,664 | 20 | 239,512 |
| 1925..... | 14 | 9,791 | 5 | 15,983 | 2 | 18,973 | 21 | 44,747 |
| 1926..... | 23 | 13,237 | 1 | 2,231 | 1 | 8,139 | 25 | 23,607 |
| 1927..... | 17 | 8,964 | 3 | 8,052 | 2 | 10,556 | 22 | 27,572 |
| 1928..... | 33 | 11,631 | 2 | 4,860 | ..... | ..... | 35 | 16,491 |
| 1929..... | 31 | 13,659 | ..... | ..... | ..... | ..... | 31 | 13,659 |
| Total..... | 148 | 79,595 | 16 | 45,966 | 18 | 564,009 | 182 | 689,570 |
| Consolidations involving toll lines only, or small consolidations in which the number of subscriber stations is not stated..... | | | | | | | 6 | ..... |
| Grand total..... | | | | | | | 188 | 689,570 |

The operations have been distributed by years as shown in Table I.

This number of 689,570 telephone stations involved in consolidations during the past nine years may be compared with the 18,522,767 telephones in service in the United States in the year 1927, and with the 13,726,056 telephone stations controlled by the Bell system alone. The number of merged stations is not negligible, but it is obviously not large, and the typical transaction has been of small, or at most, of moderate importance. One hundred and forty-eight out of 182 cases have been concerned with the acquisition of systems which averaged only 538 subscriber and service stations to the system, or

the equipment of a country town. Sixteen cases have dealt with systems averaging 2,872 subscriber stations to the system, a number which, in 1922, might have characterized a city of 22,000 inhabitants; and only 18 cases have had to do with large enterprises, averaging 31,334 subscribers to the system, and usually serving several counties. It may further be observed that out of the 18 cases in which the average number of subscriber stations per system exceeded 4,500 stations, and the average was 31,334 stations, there were only seven instances in which the vendor reported as many as 20,000 and only four in which it reported as many as 50,000 subscribers.¹⁰

¹⁰ The seven instances in which the vendor reported as many as 20,000 subscriber stations were the following:

1. Ohio State Telephone Company and Ohio Bell Telephone Company, 1921. The Ohio State, before the merger, maintained 85 exchanges in 74 counties in the State of Ohio. (70 I. C. C. 463 (1921).)

2. Chesapeake & Potomac Telephone Company and Ohio Bell Telephone Company, 1921. A combination of two Bell telephone companies. (70 I. C. C. 768 (1921).)

3. Kinloch System and Southwestern Bell Telephone Company, 1923. The purchase by a Bell subsidiary of a considerable independent company operating in Illinois and Missouri. (76 I. C. C. 709 (1923).)

4. Citizens Telephone Company and Michigan State Telephone Company, 1923. A Bell company buys an independent system in Michigan. (82 I. C. C. 80 (1923).)

5. Kansas City Telephone Company and Southwestern Bell Telephone Company, 1924. A Bell com-

(Footnote 10 continued on page 25)

Effect Upon Bell System

Apart from the total number of stations involved, perhaps one of the first problems of general interest in the working out of the national telephone consolidation policy is whether the result of such a policy has been anything more than an extension of the already dominant Bell system. It was suspected in 1921 that the Bell people would profit from a liberalized consolidation law; but it was then stated in debate that consolidations would work both ways. Representatives of independent companies, it was argued, intended to take over Bell telephone companies in communities where these independent companies were better equipped, although in other communities where the Bell telephone company was equipped to take over independent lines it would do so. There would not be, it was said, a universal monopoly existing all over the United States, but there would be a unification of service in different localities, in some places the business being taken over by the Bell company, in others by the independent companies.¹¹

In actual practice, the expectations just expressed have not been fully realized. It is true that not all consolidations during the past nine years have consisted of extensions and acquisitions by Bell companies. Thus, in something less than a dozen instances, small

companies have taken advantage of the law to merge with other small competing or adjoining properties.¹²

Again, though in a smaller number of instances, the Bell system has deliberately withdrawn from a certain territory, selling its exchange therein to an independent company or group of companies. Cases in which the Bell system has parted with properties in this way include simple sales for a monetary consideration, such as the disposition of unprofitable exchanges at four Pennsylvania points to the Kittanning Company in 1924,¹³ the sale of Bell properties in York and Adams Counties, Pennsylvania, to the York Telephone Company in 1925,¹⁴ and the sale of seven other exchanges in Pennsylvania to the Mutual Telephone Company, also in 1925.¹⁵ They also include a few instances in which a Bell company has sold to a corporation, sometimes one organized for the purpose, in which it has received a minority interest in common or preferred stock in entire or partial consideration for the property transferred,¹⁶ and they blend into a somewhat larger number of cases in which the transaction between the Bell company and some independent system has taken the form of an exchange in which a Bell company has surrendered its property and operating rights in part of a territory in which it competes with a local system in return for exclusive possession of the remainder of the area in which the Bell and the

(Footnote 10 continued from page 24)

pany extends the area of its operations by buying control of a relatively large independent system in Missouri, Kansas, and Texas. (86 I. C. C. 525 (1924).)

6. Fifteen companies in Kentucky, serving 47,086 subscriber stations, are absorbed by the Cumberland Telephone & Telegraph Company in 1924. (90 I. C. C. 567 (1924).)

7. Lehigh Telephone Company and Bell Telephone Company of Pennsylvania, 1924. A Bell company exchanges property with an independent company in Pennsylvania. (94 I. C. C. 285 (1924).)

¹¹ 61 *Congressional Record* 1990, Pt. 2, June 1, 1921, Barkley.

¹² 71 I. C. C. 46 (1922); 82 I. C. C. 774, 809 (1923); 90 I. C. C. 293 (1924); 105 I. C. C. 200 (1925); 105 I. C. C. 515, 579, 655 (1926); 117 I. C. C. 35, 321 (1926).

¹³ 94 I. C. C. 183 (1924).

¹⁴ 99 I. C. C. 546 (1925).

¹⁵ 105 I. C. C. 371 (1926).

¹⁶ 70 I. C. C. 705 (1921); 76 I. C. C. 401 (1923); 79 I. C. C. 113 (1923); 99 I. C. C. 366 (1925).

local system have been in contact.¹⁷ In cases of the last-named type the Bell company has frequently agreed to enter into exchange and toll-line traffic agreements which have increased the advantage which the second party to the exchange has drawn from the compact.

All told, out of 182 telephone mergers reported between 1921 and 1929,¹⁸ 11 consolidations were between independent companies, and in 22 instances a Bell system sold or traded some of its telephone properties to an outsider. In the remainder of the cases an independent company appeared as vendor and a Bell company as vendee. The net result has been a noticeable growth in the relative importance of the Bell organization. According to the Census, 58.3% of all telephones in the United States were owned by the Bell system in 1912, 62.5% in 1917, 66.3% in 1922, and 74.1% in 1927. There has undoubtedly been a trend toward concentration for some years, independent of the Act of 1921; but the very considerable strengthening of the Bell position since 1922 has been coincident with the operation of the law of 1921, and, probably enough, has been facilitated by the statute.

Elimination of Duplication

This brings us to a second question mentioned in the Congressional debates—namely, how far the motive and effect of consolidations under the Act of 1921 have been the elimination of duplication. It is clear that Congress originally regarded the elimination of dual systems of telephones operating in identical territory as one of the most important steps which could be taken to improve telephone service where this duplication occurred, and most students would support such a position. Whether the actual

consolidation program has centered upon the elimination of duplication is another matter.

We are fortunately in a position to make reasonably exact statements regarding the effect of recent consolidations in eliminating competitive wastes because of the character of the reports of the Interstate Commerce Commission. All telephone cases under the Act come, of course, before this Commission. Now, the Interstate Commerce Commission decided four cases of telephone combination during the first year of the administration of paragraph 9. Three of these related to comparatively large transactions, and in all four the effect of consolidation in reducing duplication was mentioned, although without precise statement of the number of duplicated stations. However, beginning with 1922, the second year, the Commission developed a form of report in which the number of subscriber stations duplicated by the merging parties in each case was stated, and we can accordingly observe the extent to which duplication has been avoided by merger since 1922 with a very considerable degree of accuracy. The facts in the case are presented in Table II, which distinguishes: first, the number of stations duplicated annually in all telephone merger cases; second, the number of subscriber stations of vendor companies in cases in which duplication has been present; and, lastly, the total number of subscriber stations operated by vendor companies each year at the times of consolidation. The significance of Column B in the table is obvious; the remaining information is added in order to place the statistics of duplication in their proper setting.

Table II shows unquestionably that

¹⁷ 82 I. C. C. 313 (1923); 86 I. C. C. 251, 805 (1924); 90 I. C. C. 57, 359, 705 (1924); 94 I. C. C. 17, 20, 285 (1924); 99 I. C. C. 90, 218 (1925); 105 I. C. C. 152 (1925); 117 I. C. C. 55 (1926); 117 I. C. C. 546 (1927); 150 I. C. C. 25 (1928).

¹⁸ Vols. 70 to 154 of the Interstate Commerce Commission decisions.

TELEPHONE CONSOLIDATION UNDER ACT OF 1921

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TABLE II. CONSOLIDATION AND DUPLICATION OF TELEPHONE STATIONS, 1922-1929.

| Year | Stations Duplicated | Subscriber Stations | | | |
|---------|---------------------|--------------------------------|------------|--------------|------------|
| | | In Cases Involving Duplication | | In All Cases | |
| A | B | C | D (B+C) | E | F (B+E) |
| 1922... | 10,044 | 28,263 | 35.54% | 28,263 | 35.54 |
| 1923... | 24,960 | 114,371 | 21.89 | 118,469 | 21.07 |
| 1924... | 16,599 | 109,778 | 15.12 | 239,512 | 6.93 |
| 1925... | 9,451 | 39,783 | 23.75 | 44,747 | 21.12 |
| 1926... | 4,389 | 19,596 | 23.42 | 23,607 | 19.44 |
| 1927... | 2,687 | 14,432 | 18.62 | 27,572 | 9.75 |
| 1928... | 1,432 | 4,732 | 30.27 | 16,491 | 8.68 |
| 1929... | 750 | 2,420 | 31.00 | 13,659 | 5.49 |
| Total | 70,512 | 333,375 | 21.15 | 512,320 | 13.76 |

mergers and the elimination of duplication have gone hand in hand. If we regard all the vendor stations as a group, it appears that 70,512 stations out of 512,320 stations, or 14% of merging stations, were duplicated before consolidation, and presumably this number of duplications was eliminated after merger occurred. The facts are even more impressive if we limit ourselves to the 333,375 stations involved in cases in which the elimination of duplication was publicly considered as a reason for consolidation, for the 70,512 duplications constitute 21%, or more than $\frac{1}{5}$ of this sum. It may be said parenthetically that such figures indicate a possible reduction in telephone equipment and a possible relief to the telephone user which go far to justify the entire policy of the law.

The table indicates another fact also, and this is that the number of stations duplicated in merger cases and the proportion which these bear to the total number of telephone stations operated by vendor companies has steadily decreased, absolutely since 1923 and relatively since 1925. The proportion of duplicated to total vendor stations for the consolidations of 1922 to 1926 was 14%; that for the years 1927 to 1929 was 8%. The reason is probably not that duplications ceased to be important in some cases, for the percentage of duplicated sta-

tions to vendor stations in cases in which the elimination of duplication was an announced purpose remains high, but it appears rather to be the case that instances of consolidation have multiplied in which no elimination of duplication was expected and in which none has occurred. We have, therefore, to consider what types of merger these last may be.

Types of Consolidations

Experience seems to show that telephone mergers which have taken place under paragraph 9 may be distributed according to their impelling motive into two groups. One group clearly includes those cases in which two or more companies operate in a single city or territory and join together primarily in order to avoid duplication and to promote economy in service. Such mergers have been discussed and need not again be referred to. They include all but one of the major operations as well as other mergers of varying size.

In the other class of cases the typical union is that of a small company with a larger organization, sometimes in order to secure telephone connection with the subscribers of the larger unit, or the use of toll lines for long-distance service; but more often because the small system lacks the capital, credit, and revenues to extend or even to maintain its plant, or because the owners of the small enterprise desire to withdraw from the telephone business and to devote themselves to other activities which are more profitable or for which they are better trained. Doubtless this division of mergers into two groups is not logically all-inclusive, and there are a few cases in which neither lack of capital and ability nor the desire to avoid duplication of service have been deciding factors; but it must be remembered that the desire for monopolistic gain and the wish to profit by manipu-

lation of security issues, which figure in industrial combinations, have little influence in the closely regulated telephone business, and considerations related to cost and capital may be expected to and do in fact prevail.

Now it is usually the small telephone system which lacks capital, as has already been observed. Persons who are not in contact with telephone operations are apt to forget how numerous these small enterprises still are. Sometimes the local organization was, at its inception, a cooperative affair. Citizens in a town install a local service intended to function upon a non-profit basis, and cause the plant to be operated until those responsible are no longer able to give the time and attention which the business requires.¹⁹ A plant will be entirely operated by a man and his wife.²⁰ Or it may be that a hardware merchant and a stock raiser may undertake telephone responsibilities,²¹ or a physician may supplement his income,²² or a farmer may work an exchange with the help of his children.²³ Sometimes the health of the local telephone magnate may break down,²⁴ or he may wish to move away,²⁵ or simply to retire.²⁶ Sometimes a local catastrophe, such as a hurricane, may cause damage which the owner of a local telephone system may be unable to repair.²⁷ Sometimes the character of the town will change, as when an exchange area on the outskirts of a large city is occupied by wealthy business men who demand a higher type of service,²⁸ or the advent of tourists and perhaps the construction of a hotel will create a new demand which the local plant cannot supply,²⁹ or a

summer resort traffic may be built up;³⁰ or, still more frequently, a town will just grow, and the parties who originally installed its telephones will find that they lack money, time, and ability to care for its expanding needs.

If we group the telephone mergers of the past 10 years according to their size, we shall find that relatively fewer subscriber stations have been duplicated in cases involving the absorption of small companies than where vendor companies have been large or of moderate size.

Table III shows that about 9% of the vendor stations between 1922 and 1929 have been duplicated on the average in telephone mergers in which the vendor companies have served not to exceed 2,000 stations, while the percentage in the case of telephone mergers of a more comprehensive kind has been

TABLE III. CONSOLIDATIONS AND DUPLICATIONS BY CATEGORIES, 1922-1929.

| Description of Group | Stations Duplicated | Total Number of Subscriber Stations | Percentage of Stations Duplicated to Total Subscriber Stations |
|-------------------------------|---------------------|-------------------------------------|--|
| 1-2000 Subscriber stations | 7,255 | 79,595 | 9.12% |
| 2001-4500 Subscriber stations | 8,207 | 43,651 | 18.80 |
| Over 4500 Subscriber stations | 55,050 | 389,074 | 14.15 |
| Total | 70,512 | 512,320 | 13.76 |

considerably more. It is an historical fact that the average number of vendor stations to a consolidation from 1922 to 1926 was 5,051, or considerably above the dividing line of 2,000 that we use to distinguish large from small telephone operation, while the average number of vendor stations to a consolidation from 1927 to 1929, was 667 or considerably

¹⁹ 150 I. C. C. 641 (1929).

²⁰ 145 I. C. C. 591 (1928).

²¹ 150 I. C. C. 221 (1929).

²² 145 I. C. C. 81 (1928).

²³ 138 I. C. C. 697 (1928).

²⁴ 138 I. C. C. 64 (1928).

²⁵ 145 I. C. C. 76 (1928).

²⁶ 145 I. C. C. 147 (1928).

²⁷ 145 I. C. C. 321 (1928).

²⁸ 105 I. C. C. 815 (1926).

²⁹ 150 I. C. C. 513 (1929).

³⁰ 111 I. C. C. 647 (1926).

below this line. It seems reasonable to conclude, therefore, that the lessened importance of duplication of facilities as a motive to telephone consolidation has been due in recent years to this change in composition of the merging groups, rather than to any change in policy with respect to the consolidation of comparable companies in earlier and later years.

Terms of Merger Transactions

We may now turn from the subject of the character and causes of telephone consolidation under the law of 1921 to the question of the terms upon which consolidation has taken place under this enactment. There is nothing in the law nor in the published Congressional discussions regarding the Act of 1921 which throws any light upon the expected basis for compensation in consolidation cases, except the fear expressed lest the price paid by the purchaser might sometimes be unreasonably high. It was not even clear to all Congressmen that the Interstate Commerce Commission could control the details of a telephone merger under the Act, although most legislators probably assumed that the power of the Commission to refuse its assent to a proposed merger would enable it to dictate terms. *Prima facie*, prices should be reasonable in order to protect the consumer; and they should contain little or no speculative element, both because the demand for telephone service is comparatively stable and predictable, and because the quantity of service offered is subject to monopoly control. *Prima facie*, also, the same principles applicable to valuations for rate purposes should be used in cases of telephone consolidation, because it is almost certain that prices which the Commission approves for the purpose of consolidation will be absorbed into the rate-bases of the com-

panies affected, and that these prices will be used at some future time in controversies relating to a fair return. Let us see how far these assumptions have been verified in practice.

Most purchases of small or moderate-sized telephone properties since 1920 have been for a cash consideration, and unaccompanied by any issue of stock or bonds. We have already seen that the total number of consolidations involving 4,500 or less subscribers per consolidation between 1921 and 1929 was 164 and the total number of subscribers affected 125,561. Sixty-nine per cent. of these subscriber stations were acquired by the purchaser entirely for cash drawn from his existing cash resources, and 72% of the total price paid for all of these purchased stations was entirely in cash. Of the balance some was in cash, some of the difference is accounted for by the tender by the purchaser of other telephone properties in exchange, in some instances the purchaser assumed outstanding liabilities, and in other cases stocks and bonds were given to the vendor or were issued and sold to provide cash required for the purchase. It is to be remembered that the aggregate sum required for all of these small or moderate-size transactions was less than \$12,000,000, and that the purchaser was in most cases a company affiliated with the powerful Bell system. When the purchaser was not a Bell company, the percentage of transactions completed entirely upon a cash basis fell as low as 40% (excluding exchanges). When the Bell company sold and an outside company bought, the percentage was 37 or still lower. These cases, however, form a small percentage of the whole. With respect to the very substantial portion of the telephone consolidations which have concerned companies with 4,500 subscribers or less, the policy of

permissive merger has provided few new issues of securities, and raises no important questions connected with security control.

Large telephone properties cannot ordinarily consolidate upon a cash basis to the same extent as the smaller companies. Since 1920 there have been 18 cases of consolidation involving units with 4,500 or more subscribers each. The available information with respect to four of these mergers is incomplete, but for 14 of them it is full enough to permit analysis. For the 14 companies of this group an aggregate price of \$34,789,122.70 was paid. Of this, \$11,839,575.17 was in cash, \$3,833,008 consisted of properties offered in exchange, and \$19,116,539.53 took the form of the issue of stock, the execution of a note, or the assumption of the vendor's outstanding liabilities. It has been a common practice in large consolidations for the purchasing company to assume the liabilities of the vendor, although in three cases the purchase price was paid in stock and no liabilities were assumed.

Assumption of liabilities reduces the sum which the vendor is compelled to raise immediately, and obviates to this extent fresh financing. It introduces no new complications into the financial structure, and this is also true of the exchange of properties on the assumption that the exchanged properties are fairly valued. Whether the use of cash has the same effect depends upon how

the cash is procured. In the case of small transactions we have seen that cash tendered was ordinarily drawn from the vendor's cash resources; in the large operations this extremely conservative practice was sometimes but not always possible. Notably in four cases, including \$7,546,365 out of the total cash offers of \$11,839,575.17, additional financing was necessary. In two of these instances the American Telephone and Telegraph Company advanced the necessary funds to a purchasing subsidiary either on open account or on execution of a demand note. In the other two instances new securities were issued. There is not a great deal of difference between tendering new securities directly for acquired property and borrowing or selling securities for cash which is then used to consummate a sale. If we subtract the \$7,546,365 raised in this way from the total cash transactions we have basis for the conclusion that only \$4,293,210.17 out of \$34,789,122.70 was paid in this group of operations from cash resources previously accumulated by the buyer. This is in rather striking contrast to the practice in the smaller mergers. In view of the method of valuation followed, however, which we shall presently discuss, and because also of the part played by the exchange of properties and the assumption of liabilities, it does not seem probable that the fixed charges supported by telephone systems have been increased, even in the case of the larger consolidations.³¹

³¹ Reference may be made at this point to the single case in which the Interstate Commerce Commission denied an application of telephone companies to consolidate during the period of 1921 to 1929. This denial was of an application by the Illinois Commercial Telephone Company, a newly organized corporation, to acquire the properties of the Illinois Southern Telephone Company, the Commercial Telephone Company, and of two smaller telephone companies all operating in Illinois. The estimated reproduction cost new of the four systems was \$3,518,104.95, the cost less deprecia-

tion was estimated at \$3,166,294.45, and the price offered was \$2,670,000 in cash. The plan of consolidation in this case differed, however, from the type of practice which the Commission has frequently approved in two respects: (1) it was proposed to dissolve the vendor companies and to substitute a new company with an increased capitalization, but no additional assets; and (2) there was no evidence that costs of operation would be reduced or service improved. The Commission, therefore, preferred to leave matters as they were. (145 I. C. C. 43 (1928).)

The observations in the foregoing paragraphs fall a good deal short of presenting a complete picture of the manner in which telephone consolidations of the past nine years have been financed, but they at least suggest that the interesting feature of telephone consolidation under the Act of 1921, now paragraph 9 of section 5 of the Act to Regulate Commerce, has been less how the money for the acquisition of control has been raised than how the prices have been determined which the vendee companies have agreed to pay.

Upon this last point, unfortunately, it is extremely difficult to discover a standard practice. The two obvious bases for a price in case of transfer of title to property are, first, earnings, and, second, valuation. Now it does seem that there is some correspondence between gross earnings, at least, and the amounts paid by vendee companies in the telephone cases if one is satisfied with very general conclusions. Thus in the instances in which both prices and earnings are reported, vendees have paid between $1\frac{3}{4}$ and $3\frac{1}{3}$ times gross earnings for the lines they have acquired, with variations above and below these representative figures to which we shall presently refer. The multiple of gross earnings appears, moreover, to decrease as the size of the consolidation has diminished. If we divide vendor companies into three groups according to the purchase price they have received, we may calculate that the median of instances in which the price was as much as \$100,000 was between 3.32 and 3.39 times gross earnings; that in which the price was less than \$100,000 but over \$20,000 was 2.69 times gross earnings; and that in which the price was \$20,000 or less was between 1.71 and 1.74 times gross earnings. There is a reasonable basis for this progressive change, be-

cause small telephone companies, often poorly equipped and badly managed, do not enjoy the stability of earnings which we associate with larger concerns; and the conformity between what has happened and what we should naturally expect in the experience of the three groups mentioned tempts one to generalize in a rather definite way.

When we talk about earnings and the price of telephone properties, however, we have to remember two things. The first is that the range of relationships between gross earnings and purchase price is very wide. Small companies have sold since 1921 for from .19 to 5.13 times their gross; medium-sized companies for between .97 and 7.87 times their gross; and companies commanding a price as high as \$100,000 for from 1.31 to 30.49 times their gross. The second is that whatever can be said of gross earnings, there is apparently no standard relationship at all between the net earnings of vendor telephone companies in our various groups and the prices paid for these systems. Indeed, no one who has examined the extremely various operating results of the small telephone systems which have sold out during the past 10 years would expect such a standard relationship to exist. People who buy the sort of telephone properties which have recently come upon the market must, of course, have some idea of what they may be able to do with them, but they must rely for the most part upon their own successful experience in similar situations for their inspiration, and not upon the record of the vendor.

One must remember also that tall prices in consolidation cases must receive the approval of the Interstate Commerce Commission, and that this federal body relies more upon valuation than upon the capitalization of earnings in determining what telephone price it will

approve. It can hardly act differently in view of its general regulatory practice, and of the fact already mentioned, that prices set in consolidation cases are more than likely to be cited as evidence of value in rate and capitalization litigation affecting the same company. Valuation, then, as well as earnings, has affected price. The Interstate Commerce Commission has not, it is true, attempted a valuation of all telephone companies after the fashion of its railroad valuations, nor will one find in its telephone decisions any discussion of the principles of valuation. But the Commission cites a valuation in nearly every consolidation case, and the prices it accepts have been near enough these estimates to make a causal connection seem probable. Valuations have, in many instances, been official, as when the engineering department of a State Public Service Commission has conducted an appraisal; in other cases the valuation has been performed by an engineer of the Bell Telephone Company when the Bell system has been a purchaser, or by some other private engineer. Whether public or private, valuations have set forth the cost of reproduction less depreciation, frequently the cost of reproduction new, sometimes the investment or original cost, and sometimes a figure called present or structural or appraised value; except that since the latter part of 1924

the only bases of value reported have been, save for one minor instance, those of cost of reproduction less depreciation and cost of reproduction new.

The writer has taken pains to compare the purchase price paid for telephone properties in the course of consolidations under paragraph 9 with estimates of the cost of reproduction new, original cost, and cost of reproduction less depreciation as reported in the published decisions of the Interstate Commerce Commission since 1921. The results are set forth in Table IV below.

While the Interstate Commerce Commission has never committed itself to the preferential recognition of any single basis of valuation in the telephone cases, yet the correspondence of approved price to the figure of cost of reproduction less depreciation, and the fact that this basis and the estimate of cost of reproduction new are the only figures reported in recent years suggest strongly that cost of reproduction less depreciation has been given more weight than other bases which may have competed on grounds of principle. Indeed, the lack of records of original cost and the extreme degree of depreciation of many telephone properties may have made such a selection necessary.

There is, nevertheless, one fundamental circumstance in these telephone valuations which distinguishes them

TABLE IV. COMPARISON OF PRICE AND VALUATION IN TELEPHONE CONSOLIDATIONS SINCE 1921 (*)

| Basis of Valuation | Number of Instances | Aggregate Price | Aggregate Valuation | Percentage of Price to Valuation |
|--|---------------------|-----------------|---------------------|----------------------------------|
| Cost of reproduction new..... | 92 | \$17,020,431.34 | \$23,798,422.27 | 71.52% |
| Original cost | 6 | 10,197,861.14 | 11,941,828.49 | 85.39 |
| Cost of reproduction less depreciation | 155 | 34,213,490.06 | 37,385,764.40 | 91.51 |

*This tabulation does not include the miscellaneous valuations where no basis was stated in the decision of the Interstate Commerce Commission, nor those in which descriptive terms were used as structural value or appraised value, the exact meaning of which is doubtful. Such valuations were reported in 18 out of the 182 cases, and the price paid in these instances was 83.1% of the valuation. It is perhaps unnecessary to point out that the different categories in the table cannot be added together without producing duplication, as two or more bases of valuation are often reported in a single case.

from the more careful appraisals of the reproduction costs of public utilities which state and federal authorities have made in other types of cases. This is that the reproduction value taken in telephone cases is not that of property used or useful to the vendee, but more nearly that of property used or useful to the vendor. The difference between these two categories is so great in the case of many of the companies affected by paragraph 9 as to make the process of valuation almost as uncertain as the application of a selected factor to gross or net earnings in order to ascertain a price.

We may illustrate the difference between the value of telephone property useful to the vendee and that of property used by the vendor, first, by two specific examples, and, second, by a more general statement.

Let us consider the recent case of the purchase of the properties of the Estancia Telephone Company in New Mexico by the Mountain States Telephone & Telegraph Company, a Bell corporation. The Estancia Company was a small enterprise serving 74 urban and 94 rural stations from two exchanges, and 10 toll stations, which had a plant valued at \$24,242.43 on the basis of cost of reproduction new and at \$13,777.32 on the basis of cost of reproduction less depreciation. Both of the company's exchanges were grounded exchanges, and 62% of its toll lines were iron grounded. The Mountain States Company acquired the Estancia system in 1929 for \$20,000. Instead of repairing existing lines, or replacing them with others of like type, the Bell company retired from service property valued at \$12,698.61, or 92% of the whole, at a cost of removal of \$1,657.84, and then proceeded to intro-

duce equipment of standard design. The operating revenues and expenses of the Estancia Company were \$6,525.39 and \$5,518.31 respectively for the year before the sale took place.³²

A second specific case is that of the acquisition of the properties of the Susquehanna Valley Telephone Company by the Bell Telephone Company of Pennsylvania, also completed in 1929. The Susquehanna Company operated 12 exchanges and served 1,735 subscriber stations in four Pennsylvania counties. It was, therefore, somewhat larger than the Estancia Company in New Mexico, but it was less profitable, as its reported operating revenues and expenses for 1928 were, respectively \$39,985.76 and \$55,391.53. The estimated cost of replacing the Susquehanna plant new was \$341,383 and the cost less depreciation was \$237,769. The existing plant needed, however, complete rehabilitation. When the Bell company bought the property for \$120,000, it retired property valued at \$222,412 at a net cost for removal of \$19,472; a total loss and expense greater than the figure of reproduction cost less depreciation.³³

It is difficult to understand the justification for the price paid in either of these random cases. The property bought in both operations was highly depreciated, so much so that most of it had to be discarded. Neither vendor company was especially prosperous; in fact, the larger one was losing money. In each case the vendee was compelled to make a considerable new investment before it could operate to advantage. Yet in one case the Interstate Commerce Commission approved a price of \$20,000 and in the other of \$120,000 for a consideration which is not readily perceived.

³² Purchase of Properties of Estancia Telephone Company by Mountain States Telephone & Telegraph Company, 154 I. C. C. 505 (1929).

³³ Purchase of Properties of Susquehanna Valley Telephone Company by Bell Telephone Company of Pennsylvania, 154 I. C. C. 625 (1929).

The general statement with respect to the relation of retirements to valuation is as follows. During the last nine years, decisions of the Interstate Commerce Commission show that out of 155 cases in which cost of reproduction less depreciation is reported, 98 were characterized by retirement of plant. The aggregate valuation in these 98 cases on a cost less depreciation basis was \$32,787,417.61. The value of property retired exceeded salvage in the same cases by \$6,589,797.32, leaving a useful value of only \$26,197,620.29 to the vendee. Not only this, but the vendee company found it necessary to incur expenses in the operations referred to for cost of removal and unification of property to the amount of \$7,230,072.78, reducing the net value to it of the property acquired to \$18,967,547.51. For this property the vendee companies paid \$30,026,360.91. When one remembers that the aggregate price paid for all properties for which cost of reproduction less depreciation has been reported was only a little greater than \$34,000,000 the importance of the discrepancy of \$11,000,000 becomes manifest.

It is rather curious that care should have been taken to collect valuation data in telephone consolidation cases when the method finally employed permits such a spread between the recognized value on any basis, the price paid, and the net worth of the purchased property to the company which acquires it; and it is still more surprising that companies managed by as clear-headed persons as those in charge of Bell telephone operation should have been willing to pay so liberally for property which was often of little use to them under conditions following a merger. The answer to the enigma in so far as the companies are concerned is probably that they expect to include their invest-

ment in their rate-base and so, ultimately, to secure a fair return upon the sums which they have expended; while the Interstate Commerce Commission may have thought that consumers can afford to be generous to small isolated pioneers in the telephone industry in view of the advantage to society which consolidation will bring. There is no indication that supposed franchise values have played a part in determining the price at which telephone properties have been bought and sold, nor that vendors have possessed a nuisance value that enabled them to dictate terms.

On the whole, in spite of this criticism, the congressional policy expressed in the Act of 1921 appears to have justified itself by the experience of the past nine years. It has led to no conflict between state and national authority. The references to local regulating agencies required by the law have been regularly made as applications for permission to consolidate have been filed, and except in one instance both state and federal commissions have agreed with respect to the action which was in the public interest. The number of cases submitted has, perhaps, been less than was expected and their importance less considerable. Seven hundred thousand subscriber stations are not a great proportion, even of the number of stations independently served in 1921; yet it is a substantial number. And though the elimination of duplication by consolidation has become a result of less and less importance, on the other hand, the absorption of many weak and inefficient local telephone systems into one or other of the Bell organizations has made for better service, most frequently at no higher rates to consumers than prevailed before. The only real question has been one of price. Generally speaking, telephone consolidation under the Act of 1921 has not opened the

door for promoters' profits, but it has enabled a great many small enterprises to sell out to larger ones for sums which have borne little relation to their earnings or to the cost of reproducing their properties. Several millions of dollars have been paid out by purchasing companies in this way, and amounts have been recognized by public authority for which the chief return is likely to be in

local good will. Perhaps this is another form of the protection to weak companies which counts so largely in the discussion of railroad consolidation. Politically it is advantageous, on social grounds it can possibly be defended, and in any case the expenditure is of a non-recurrent type, offset by improvements in the organization and operation of an utility of great public concern.

Transit and the Trend of Multi-Family Housing

By COLEMAN WOODBURY

THE dependence of urban development, particularly in the larger cities, on transit facilities is an obvious fact. One has only to notice the spurs of developed land along transit lines radiating from the central portions of any good sized city. The degree of this dependence is shown strikingly by the computation made by Mr. Daniel L. Turner and published in the *Regional Survey of New York and Its Environs*.

"Out of 5,504,000 people in the four boroughs (Manhattan, Brooklyn, the Bronx and Queens in 1925), 5,000,000 are concentrated in the 96 square miles served by rapid transit. This is to say, 91% of the borough populations are concentrated in 40% of the area within a half mile each side of the rapid transit lines. The remaining 504,000 people, or 9% of the population, are spread over 60% of the area, or over 146 square miles."¹

From this fact arises the question—has the strength of the apartment-house movement been influenced by the transit facilities provided in the different cities? In order to answer this question with some degree of assurance an index for measuring and comparing the transit systems in the various cities would have to be devised. Such an index, to have any claim to completeness, should include data on the cost, speed, frequency, and reliability of service and on the amount and distribution within the city of single-track and double-track lines in

relation to the city's population. Not only would data on these aspects of transit service have to be collected, but some scheme of weighting them would be necessary in order to combine them into an index of the satisfactoriness of transit service. At present sufficiently complete data are not available on most of the points mentioned and no system of weighting or combining them has been established.

Data were supplied, however, by the American Electric Railway Association on mileage of single track in surface-line and rapid-transit service in 1920 in 78 cities² included in the study, the net changes in this mileage from 1920 to 1928, and the net additions of bus service, measured in round-trip miles. In light of the available material this section of the study was reduced from the ambitious proposal of discovering and measuring the possible effects of transit service on the multi-family house movement to the testing of the hypothesis that: scanty transit facilities stimulate multi-family housing. Stated more exactly, the apartment-house movement is expected to be strongest in (a) those cities which had the smallest amount of mileage in transit track in proportion to their population at the beginning of the period covered by this study, and (b) in those cities which made

¹ (New York: Committee on Regional Plan of New York and Its Environs, 1929), vol. II, p. 153. This probably is a rather extreme instance but the connection shown will hardly be doubted. The conclusion should not be drawn, however, that the interrelation of transit and land development is extremely direct and simple. Although outside the scope of this study, a

monograph entitled, *Land Values in New York in Relation to Transit Facilities* (New York: Columbia University Press, 1930) by Edwin H. Spengler, is a contribution to this entire problem.

² Mr. Edmund J. Murphy, Director of the Information Service of the Association, provided much of the data from which the indexes were computed.

the smallest net additions to their transit systems (i. e., in track mileage plus bus mileage) in proportion to the demand for new houses from 1921 to 1928.

The rationale of this hypothesis is quite simple. A large mileage of transit track in relation to population or a large net increase over a period of years, in relation to population increase (or some other measure of the demand for new houses), indicates that a considerable amount of land has been opened up for and made desirable for residential use. Land values should be low and their condition should encourage the building of single-family houses and conversely should reduce the amount of the apartment-house growth. A small mileage of transit facilities and a small increase in facilities or even a decrease should, of course, work in the opposite way.

This more specific statement of the hypothesis suggests that the indexes of the transit systems of the cities will be:

Mileage in transit track, 1920 and
Population of city, 1920

Net change in track and bus mileage
Change in population (or some other measure of demand for houses)

Such a method of computation, however, would give indexes of several decimal places. In order to avoid this mechanical difficulty, the ratios are reversed and the figure of transit mileage or of net change in mileage is made the divisor. The comparison of the cities is in no way changed by this arithmetic variation but the reader must not be confused by the fact that the positive indexes now run in the same order as the expected increase in apartments, although the hypothesis predicts an inverse relationship. This will be clear by studying the following ratios:

Population of city, 1920
Mileage in transit track, 1920

Change in population (or some other measure of demand for houses)
Net change in track and bus mileage

In all tables in this section of the article, as in the preceding ones, the quartile groups will be arranged in the order of expected size of the apartment-house increase according to the hypothesis under examination; i. e., quartile group 1 is expected to show the smallest increase in multi-family houses, quartile group 4 the largest.

Before passing to an examination of the results of these methods the limitations of the data available should be emphasized. As stated above, they refer to only one of several elements in transit service. The figures for the 1920 to 1928 period are *net* changes in track and track and bus mileage. Nothing is said as to the various possible changes of which the figure given is the resultant. For example, a net increase of 10 miles of transit track might mean either the laying of 5 miles of new double-track or of 10 miles of single-track lines while the rest of the system remains unchanged, or it may mean the replacing of 10 miles of single-track line by double track, or it may result from, say, 20 miles of extensions and 10 miles of abandoned lines. Similarly the 1920 density ratios of persons per mile of transit track might be influenced markedly by the topography of the city site; a rough terrain with many unbuildable areas would mean a low density without necessarily indicating conditions favorable for single-family dwellings. A few old, almost completely built up apartment districts might raise the population density rates of another city to a high figure but the outlying sections of the city might contain many vacant lots most desirable for single-family building.

A complicating factor in all questions of measuring the interconnection of

transit service and urban development in recent years is, of course, the widespread ownership and use of motor cars. Although no thorough or convincing study of the effect of the motor car on urban development has been completed, a fact of common observation is that few large residential districts have grown up in larger cities in areas dependent entirely on private automobiles for transit. The private car has played havoc with the income of street-railway companies, but apparently cannot, in the larger cities, take the place of the systems of mass transit; i. e., either electric railway or bus. Possibly the reasons for this are the greater unreliability of motor transit in winter weather and parking difficulties in central business areas. The housewife may go in her car to shop at the outlying business center; other members of the family may use it in making visits, or trips to the theater and other amusement centers. But in the necessary daily trip to work in the central business area or manufacturing districts the motor car is less valuable and, consequently, few residential districts have developed so far (although thousands of subdivision lots have been sold) in which the sole transit means is the privately owned car. Very probably, however, the automobile has enlarged the area which is served by lines of mass transit and to this extent is supplementary to them. This constitutes a disturbing influence on the hypothesis examined in this section of the study because it means that large areas may have been made accessible by the increased ownership of cars without any increase in the mileage of the transit systems. Other shortcomings of these data could be named but those mentioned show clearly that the association of the apartment-house movement with the amount and trend of transit given in different cities can be tested only roughly

by data available at the present time.

The first part of the hypothesis as stated, i. e., that the apartment-house movement is expected to be strongest in those cities which have the smallest amount of track mileage in proportion to population at the beginning of the period, will be examined first. The 78 cities on which data were given were arrayed according to their population ratios per mile of single track in 1920 and were divided into quartile groups (Table IX).

With the exception of the second quartile group, a rough correspondence of population density per mile of track to apartment increases is shown. In other words, cities with a large street-car mileage in proportion to their 1920 populations have not felt the apartment-house movement quite as strongly as have those with less mileage relatively in transit lines.

The figures in parenthesis under quartile group 4, however, which show a more moderate increase, must be considered. They are the result of dropping out the data for New York, Chicago and Philadelphia, all of which fall in the group with highest densities per mile of track. This procedure is justified, as was the similar practice in other classifications, by the extraordinary influence which these cities can exercise on any small group in which they fall because of their enormous population and, in New York and Chicago particularly, by the large amount of residential building carried on between 1921 and 1928. Against this procedure the argument may be advanced that the larger the city, usually the greater the dependence of its inhabitants on mass transit and, therefore, the elimination of the three largest cities takes out the very instances which are expected to verify most strongly the asserted connection between multi-family construction and rapid transit exten-

TABLE IX. CHANGES IN PERCENTAGE OF TOTAL FAMILIES PROVIDED FOR BY
NEW MULTI-FAMILY AND TWO-FAMILY DWELLING CONSTRUCTION IN
CITIES OVER 25,000 CLASSIFIED BY POPULATION DENSITY (1920)
PER MILE OF TRACK IN ELECTRIC RAILWAYS*

| Classes of Cities by Population Density per Mile of Track in 1920 | Number of Cities | Percentage of Families Provided for by New Multi-Family Dwellings | | Increase in Multi-Family Percentage, 1921-1928 | Change in Two-Family Percentage, 1921-1928 |
|---|------------------|---|---------|--|--|
| | | 1921 | 1928 | | |
| Quartile Group 1 (653 to 1207 persons per mile of track) .. | 20 | 9.24% | 25.03% | 15.79 | -1.60 |
| Quartile Group 2 (1208 to 1504) | 19 | 15.24 | 48.10 | 32.86 | -3.54 |
| Quartile Group 3 (1505 to 1841) | 20 | 15.05 | 35.05 | 20.00 | 6.31 |
| Quartile Group 4 (1842 to 4429) | 19 | 37.83 | 71.44 | 33.61 | -14.09 |
| Group 4, exclusive of New York, Chicago and Philadelphia..... | (16) | (16.00) | (32.51) | (16.51) | (-7.22) |

* Tables and charts are numbered consecutively with those in preceding articles.

sion. This contention carries some weight and certainly these metropolitan centers must not be neglected in this study, but the fact remains that the 16 other cities with high densities per mile of track in 1920 showed only a very moderate increase in apartment-house construction from 1921 to 1928, whereas the hypothesis suggests that there the apartment movement should be greatest.

The record of two-family house construction in the groups shown in Table IX indicates a movement which should be noted. Although no reference is made in the hypothesis to two-family houses, they might be expected to fare in about the same way as apartment houses. Quite often they are looked upon as merely smaller apartment houses and, of course, they often do resemble apartments both architecturally and economically more than they do single-family houses. In this table, however, their record is notably different. In the first two quartile groups their change is negligible; in the third they show an increase; but in the fourth a very sharp decrease occurs. One interpretation of these facts is that the moderately high population ratios per mile of track in the third quartile group encourage the build-

ing of two-family houses but in the fourth group the competition literally becomes too keen and the two-family structure has to give way before the superior power of the apartment building to command desirable sites.

The classifications of Table IX based on 1920 data indicate a possible connection between relatively inadequate transit facilities and the proportionate increase of multi-family units in new residential building. Any general statements, however, must be modified by two facts: (1) the relatively small multi-family gain of the group of cities with highest densities resulting from withdrawing the largest cities from this group; and (2) the large multi-family increase in the second quartile group of cities which would be expected to show only a moderate apartment movement.

This part of the hypothesis is open to criticism on at least two grounds. First, although the population ratios of persons per mile of transit track in 1920 do reflect roughly the amount of vacant residential land in the cities at that time, i. e., land made accessible by transit lines but not built upon, they may quite as surely reflect the relative importance in each city of the old, nearly solidly built

TABLE X. CHANGES IN PERCENTAGE OF TOTAL FAMILIES PROVIDED FOR BY NEW
MULTI-FAMILY AND TWO-FAMILY DWELLING CONSTRUCTION IN CITIES
OVER 25,000 CLASSIFIED BY POPULATION INCREASE (1920-1927)
PER MILE OF ELECTRIC RAILWAY TRACK AND BUS
EXTENSION, 1920-1928.

| Classes of Cities by Population Increase per Mile of Net Change in Track and Bus | Number of Cities | Percentage of Families Provided for by New Multi-Family Construction | | Increase in Multi-Family Percentage, 1921-1928 | Change in Two-Family Percentage, 1921-1928 |
|---|------------------------|---|------------------|---|---|
| | | 1921 | 1928 | | |
| Quartile Group 1 (55 to 382)..... | 18 | 12.48% | 38.24% | 25.76 | .11 |
| Quartile Group 2 (383 to 786)..... (Philadelphia excluded).... | 18 (17) | 15.81 (17.74) | 29.36 (32.25) | 14.55 (14.51) | 3.38 (3.10) |
| Quartile Group 3 (787 to 7285)..... (Chicago excluded).... | 18 (17) | 28.45 (17.58) | 62.66 (39.97) | 34.21 (22.39) | -5.40 (-.30) |
| Quartile Group 4 (7286 to -220)..... (New York excluded).... | 18 (17) | 37.23 (12.18) | 73.58 (27.58) | 36.35 (15.40) | -15.00 (-5.42) |

up sections of the city which cannot directly influence recent building trends. In the second place, the eight years included in this study were a period of most active residential building in most cities. Transit facilities which were satisfactory in 1920 might easily become inadequate in the later years because of the volume of building unless they were supplemented during the period.³ The second part of the hypothesis, i. e., that the apartment-house movement is expected to be strongest in those cities which made the smallest net additions to their transit systems in proportion to the demand for new houses from 1921 to 1928, avoids this second criticism. Tables X and XI present the data for testing this second part of the hypothesis.

Indexes of transit extension were computed according to the formula

$$\frac{\text{Increase in population}}{\text{Net change in mileage in transit track and bus service}}$$

³The force of this statement is shown by the fact that in the 255 cities in this study the 1921-1928 total residential building provided for 13,624,363 persons (at 4.2 persons per family), a number equal to 39.8% of 1920 population of these same cities.

for each of the 72 cities for which 1927 population estimates were made by the Bureau of the Census.⁴ Increased size of these indexes, of course, indicates a less generous policy of transit extension in proportion to the demand for new housing and, consequently, a larger expected increase in the multi-family housing tendency over the period. Ten of the 72 cities had minus indexes resulting from a net decrease in track and bus mileage over the period and were accordingly placed in the fourth quartile group.

The evidence presented in Table X as to the actual connection of transit extension and apartment-house construction, like that of the preceding table, is inconclusive. If the data for the cities over a million are included, considerable support is given to the hypothesis. But when the largest cities are taken out the entire tenor of the result changes. Particularly disturbing to the hypothesis is the sharp drop of the multi-family in-

⁴The reasons for using 1927 rather than 1928 estimates are given in the first installment of this article, 6 *Journal of Land & Public Utility Economics* 231 (August, 1930).

crease figure when New York City is omitted from quartile group 4. This, perhaps, is partially explained by the fact that 8 of the remaining 17 cities in this group are southern cities which, as shown by Table II,⁵ as a class have felt the apartment-house trend only in a moderate degree.

The two-family house record is very similar to that found in the groupings made in Table IX according to population ratios per mile of track in 1920. In the grouping in Table X the decline in the two-family percentage begins in quartile group 3 but is much more noticeable in group 4. The interpretation offered in connection with Table IX is borne out by this grouping according to indexes of change in transit facilities.

Before trying to form a judgment from this method of measuring the effect of transit changes on the multi-family house trend the results of a refinement in method should be considered. In essence the attempt is to make an index of the relation between demand for new housing accommodations and the urban residential areas opened up by transit extensions to meet that demand. Some of the shortcomings of the measure used for the latter have already been mentioned, but another line of criticism questions the adequacy of estimated population increases as measures of demand for new housing accommodations. A very large majority of the cities undoubtedly had a general housing shortage in 1921. Not only was the demand for new housing during part of the period from 1921 to 1928 created by increases in population, but by the inadequately housed families for whom the shortage existed in 1921. But how large was that shortage; what has been the demand during the eight years? No definite answer can be given

but a strong case can be made for the suggestion that this demand is *more nearly measured* by the number of persons provided for in all new construction during the period than by the estimated population increase.

Table XI presents percentages found by this improvement or, at least, change in method. The total families provided for by new dwelling construction from 1921 to 1928 were found for each city and translated into persons provided for by multiplying by the average size of families in that city as given by the Census of 1920. This figure of persons provided for in new housing was used in place of the estimated population increase in calculating the transit extension factors for the cities. The indexes to transit change were then the result of

| Persons provided for in residential construction |
|---|
| Net change in mileage in transit track and bus service |

Ten cities again had minus indexes.

The increases in multi-family percentages in the quartile groups of Table XI are very similar to those shown for the corresponding groups in Table X based on population increase rather than persons provided for per mile of track and bus route change. Although the third quartile group registers a rather less rapid apartment increase in Table XI, the results of this variation in method are almost identical with those used for the preceding table. If the largest cities are included, the groupings suggest that transit extension has been a force of considerable significance in the apartment-house tendency but, if the three largest cities are excluded, the absence of New York's and Chicago's influence makes such a statement impossible for the remaining smaller cities. The record for two-family building is similar to that in the other groupings except in

⁵ First installment, 6 *Journal of Land & Public Utility Economics* 229 (August, 1930).

TABLE XI. CHANGES IN PERCENTAGE OF TOTAL FAMILIES PROVIDED FOR IN NEW MULTI-FAMILY AND TWO-FAMILY DWELLINGS IN CITIES CLASSIFIED BY NUMBER OF PERSONS PROVIDED FOR IN NEW RESIDENTIAL CONSTRUCTION FROM 1921 TO 1928 PER MILE OF ELECTRIC RAILWAY TRACK AND BUS INCREASE, 1921-1928.

| Classes of Cities by Persons Provided for per Mile of Track and Bus Change | Number of Cities | Percentage of Families Provided for in New Multi-family Dwellings | | Increase in Multi-Family Percentage, 1921-1928 | Change in Two-Family Percentage, 1921-1928 |
|---|------------------|---|------------------|--|--|
| | | 1921 | 1928 | | |
| Quartile Group 1 (54.32 to 510.87)..... | 18 | 12.44% | 36.36% | 23.92 | .73 |
| Quartile Group 2 (510.88 to 1096.75)..... | 18 | 15.00 | 25.28 | 10.28 | -10.81 |
| Quartile Group 3 (1096.76 to 12,397.80)..... (Philadelphia excluded)..... | 18 (17) | 18.90 (20.35) | 38.85 (43.48) | 19.95 (23.13) | 3.14 (3.31) |
| Quartile Group 4 (12,397.81 to -875.87)..... (New York and Chicago excluded)..... | 18 (16) | 38.90 (8.96) | 75.25 (23.24) | 36.35 (14.28) | -13.90 (1.58) |

quartile group 2. The sharp decline shown for this group is opposed to the tendency observed in the other tables. The difference between the 1921 and 1928 percentages in this case, however, does not accurately reflect the record for the eight years. A decline in the position of two-family construction undoubtedly occurred in this group of cities but not to the extent indicated by the one figure of difference between 1921 and 1928 percentages. The 1921 percentage was higher and the 1928 percentage was much lower than any of the percentages for the intervening years. The 1922 to 1927 change in two-family house percentages was only -2.03.

So far the two parts of the hypothesis have been examined separately by constructing indexes of the proportionate size of transit systems in 1920 and the proportionate increase in transit facilities from 1920 to 1928 for all cities for which the necessary data were available and grouping the cities according to these simple indexes. A common weakness of both of these indexes is the absence of facts on

the service provided and on the distribution of transit facilities in different sections of the city. In addition to these common shortcomings each of the methods has one outstanding weakness and one unmistakable merit. Fortunately the weakness of each method is offset by the strong point of the other. The major weakness of the first method is the influence which the solidly built up sections of a city exercise on the population density per mile of transit track, although they are not factors in the new housing market. The merit of the second method is that its data are free from the influence of these sections of the cities and represent presumably the transit policy in the developing sections of the cities. On the other hand, the second method is weak in that it depends entirely on changes in transit facilities and takes no account of vacant lots suitable and desirable for building in partially built up sections which were served by transit lines at the beginning of the period studied. The 1920 densities of the first method, however, are

affected to some extent by these vacant but buildable lots.

These facts suggest that a combination of the two methods might penetrate further than either one alone. Table XII records the results of one such combination. Each class of cities in the table is based on the 1920 population ratios per mile of transit track and on one of the indexes of change in transit facilities in proportion to the need for new housing,

as shown by either population increase or total families provided for. In Section A the indexes of population increase per mile of track and bus were used for measuring changes in transit systems; in section B the indexes for this purpose were persons provided for per mile of net change in the transit systems. The three groups in each section include: (1) cities below the median (in quartile groups 1 and 2) in both methods of pro-

TABLE XII. CHANGES IN PERCENTAGE OF TOTAL FAMILIES PROVIDED FOR IN NEW
MULTI-FAMILY AND TWO-FAMILY DWELLING CONSTRUCTION IN CITIES
CLASSIFIED BY POPULATION DENSITIES PER MILE OF TRANSIT
TRACK IN 1920 AND BY POPULATION INCREASE AND
FAMILIES PROVIDED FOR PER MILE OF CHANGE
IN TRACK AND BUS ROUTE, 1920-1928.

| Classes of Cities | Number of Cities | Percentage of Families Provided for by New Multi-Family Construction | | Increase In Multi-Family Percentage, 1921-1928 | Changes in Two-Family Percentage, 1921-1928 |
|---|------------------------|---|------------------|---|--|
| | | 1921 | 1928 | | |
| A. | | | | | |
| 1. Cities below median in 1920 densities and in pop- ulation increase per mile of change in track and bus from 1920-1928 | 18 | 9.45% | 22.76% | 13.31 | -1.38 |
| 2. Cities above median in 1920 densities and below in population increase fac- tor or <i>vice versa</i> (Philadelphia excluded) | 36 (35) | 16.30 (17.08) | 36.90 (37.33) | 20.61 (20.25) | 1.89 (1.78) |
| 3. Cities above median in 1920 densities and in pop- ulation increase per mile of change in track and bus from 1920-1928..... (New York and Chicago excluded)..... | 18 (16) | 37.53 (14.51) | 74.12 (30.82) | 36.59 (16.31) | -13.92 (-.87) |
| B. | | | | | |
| 1. Cities below median in 1920 and in persons pro- vided for per mile of change in track and bus from 1920-1928..... | 18 | 10.20 | 24.59 | 14.39 | -1.35 |
| 2. Cities above median in 1920 densities and below in factor of persons provided for or <i>vice versa</i> | 36 | 15.47 | 36.91 | 21.44 | -3.82 |
| 3. Cities above median in 1920 densities and in per- sons provided for per mile of change in track and bus, 1920-1928..... (New York, Chicago and Philadelphia excluded)..... | 18 (15) | 37.40 (16.73) | 70.58 (36.67) | 33.18 (19.94) | -11.65 (+5.79) |

cedure, i. e., cities which according to both parts of the hypothesis under scrutiny should have slight apartment-house increases; (2) cities above the median (in quartile groups 3 and 4) in both methods of arraying; i. e., cities in which one would expect to see large gains in multi-family housing according to both parts of the hypothesis; and (3) cities which according to one method are above and by the other are below the median; i. e., cities for which the two indexes indicate contradictory expectations in apartment-house construction.

This table records the strongest evidence yet drawn in support of the suggested connection between apartment-house building and transit policies of cities. Subtracting New York and Chicago figures reduces the high increase in multi-family percentages as in all other classifications but in this table the remaining 16 cities above both medians show an apartment growth considerably stronger than that in cities below both medians and, in Section B, nearly the same as that of the cities falling in different halves in the two arrays.

Summary

This section of the study has been necessarily rather more complicated than some of the preceding ones and a summary must be put in qualified terms. The hypothesis underlying this section is that over a number of years the strength of the apartment-house movement should vary inversely with the proportionate size of the transit system of the cities at the beginning of the period and inversely with the proportionate increases in the municipal transit systems during the period of years. This hypothesis was derived from the much more inclusive one that the multi-family house increase should vary inversely with the extent

of the transit systems and the completeness of their service. As material was not available for the construction of a satisfactory index of transit service, the less comprehensive hypothesis has been the sole subject of this section of the study. The indexes evolved for testing it contain several assumptions and are not entirely satisfactory. Their major weaknesses have been pointed out, however, and need not be listed again.

Groupings based on these indexes justify the following statements:

1. If the largest cities are included, the relation suggested by the hypothesis is shown to a limited extent in groupings based on the two simple indexes, i. e., the transit index of 1920 and the index of transit system change from 1920 to 1928.
2. If cities over 1,000,000 in 1920 are excluded, the evidence of the relationship is seriously impaired.
3. In the groupings based on the two simple indexes, two-family houses have remained in nearly the same position or have increased slightly in the cities in the lower quartile groups but have declined rapidly in the cities with the highest indexes, i. e., where the expected increase in apartment houses is the largest.
4. A combination of the 1920 population index with the 1920-1928 measures of change in the transit system gives stronger evidence in support of the hypothesis and this evidence is thrown less into question by the exclusion of the largest cities.
5. In the light of the qualifications emphasized above, the data seem to justify the statement that the transit policy, particularly of the larger cities, has been a factor helping to determine the strength of the apartment-house movement.

Reasonable Livestock Commission Rates

By G. N. DAGGER AND HOWARD DOUGLAS DOZIER

I. General Statement

ON February 24, 1930, the Supreme Court of the United States handed down a decision in the case of *Tagg Brothers and Moorhead v. United States*,¹ involving the power of the Secretary of Agriculture, under the Packers and Stockyards Act of 1921,² to regulate charges made by commission men for selling livestock consigned to them as agents. This decision terminated four years of litigation involving the constitutionality of those provisions of the Act relating to commission rates.³

The case also involved the question of whether the method employed by the Secretary in determining a schedule of uniform rates to be observed by the livestock commission men on the Omaha

¹ 280 U. S. 420 (1930).

² U. S. Code, c. 9, title 7, §§ 181 to 229; 42 Statutes at Large 159, c. 64.

³ "Section 310. Whenever after full hearing upon a complaint made as provided in section 309, or after full hearing under an order for investigation and hearing made by the Secretary on his own initiative, either in extension of any pending complaint or without any complaint whatever, the Secretary is of the opinion that any rate, charge, regulation, or practice of a stockyard owner or market agency, for or in connection with the furnishing of stockyard services, is or will be unjust, unreasonable, or discriminatory, the Secretary—

"(a) May determine and prescribe what will be the just and reasonable rate or charge, or rates or charges, to be thereafter observed in such case, or the maximum or minimum, or maximum and minimum, to be charged, and what regulation or practice is or will be just, reasonable, and nondiscriminatory to be thereafter followed; and

"(b) May make an order that such owner or operator (1) shall cease and desist from such violation to the extent to which the Secretary finds that it does or will exist; (2) shall not thereafter publish, demand, or collect any rate or charge for the furnishing of stockyard services, other than the rate or charge so prescribed, or in excess of the maximum or less than the

market was a proper and correct one and whether the rates prescribed were confiscatory.⁴

This case is unique in that the doctrine of *Smyth v. Ames*,⁵ to the effect that a business affected with a public interest is entitled to a fair return on the fair value of the property, does not assist the rate-maker materially, for the reason that the amount of physical property necessary to carry on the commission business is negligible. It is unique also in that the rates prescribed were to be observed by 58 agencies,⁶ whereas the usual proceedings involve the fixation of a rate to be observed by only one.

The Packers and Stockyards Act⁷ is a law enacted by Congress in 1921 giving the Secretary of Agriculture certain regulatory authority over packers, stockyard owners, market agencies (here commission men), and traders. Title

minimum so prescribed, as the case may be; and (3) shall conform to and observe the regulation or practice so prescribed." (See also Sections 301, 304, 305 and 306.)

On January 16, 1926, the commission men operating on the Omaha market filed with the Secretary of Agriculture a schedule of livestock commission rates known as Tariff No. 2 amending Tariff No 1 theretofore in effect. On January 26, 1926, the Secretary of Agriculture suspended Tariff No. 2 and ordered a hearing. The hearing before an examiner for the Secretary was begun on March 26, and continued until April 14, 1926.

⁴ For the method used in arriving at a reasonable schedule and for the rates prescribed see mimeographed copy of order for the Secretary of Agriculture dated November 19, 1926. *Secretary of Agriculture v. American Livestock Commission Company et al.*, Docket 143, before the Secretary of Agriculture, Packers and Stockyards Administration.

⁵ 169 U. S. 466 (1897).

⁶ Originally there were 59 respondents. One combined with another, thus reducing the number for whom rates had to be prescribed.

⁷ See notes 2 and 3, *supra*.

III of the Act, which is applicable to stockyard owners, market agencies, and dealers, contains provisions relative to rates and charges of stockyard owners and market agencies, similar to the provisions of the Interstate Commerce Act applicable to common carriers.⁸ The Act empowers the Secretary to make inquiry into the reasonableness of rates and charges for the services of stockyard owners or market agencies, either upon complaint or upon his own motion.⁹ After a full hearing the Secretary may determine and prescribe just and reasonable rates if the existing rates are found to be unjust, unreasonable, or discriminatory.

After extended hearings, the Secretary of Agriculture issued an order on November 19, 1926,¹⁰ striking down the schedule of rates and charges which had been put into effect by the commission men operating on the Omaha market and prescribed a new schedule of reasonable rates to take effect on January 1, 1927. The schedule prescribed was lower than that in effect and the commission men enjoined the Secretary from enforcing the rates prescribed in the order. The case came on for hearing before a statutory court of three judges sitting at Omaha.

The court appointed a master to review the testimony already taken, to take additional testimony, and to report upon the facts and the law. The master held the law to be unconstitutional, found the rates prescribed to be con-

⁸ House Report 77, 67th Congress, First Session on H. R. 6320, "The Secretary of Agriculture is given substantially the same jurisdiction over stockyard matters which the Interstate Commerce Commission has over railroads, including the power after full hearing, to establish and enforce just and reasonable rates and charges for, and practices in connection with, the furnishing of stockyard service."

⁹ See §§. 306 (e) and 309 (c) of the Act.

¹⁰ See note 4, *supra*.

¹¹ In the District Court of the United States for the district of Nebraska, Omaha Division, No. 847 Equity,

fiscatory, and recommended to the court that the injunction against the enforcement of the order be made permanent.¹¹ The lower court overruled the findings of the master and entered a decree dismissing the petition of the commission men and dissolving the temporary injunction which it had granted.¹² The Supreme Court upheld the decision of the lower court, sustaining the Secretary of Agriculture.¹³

II. Nature of the Problem Before the Secretary

Of the 58 commission firms for which uniform rates were to be made, some did business as individuals, some as partnerships, others as corporations, and still others as branches of partnerships and corporations located elsewhere. These firms occupy offices in the Exchange Building, owned by the stockyards company, for which they pay rental. They carry on their buying and selling operations in pens belonging to the stockyards company. They pay no rent to the stockyards company for the use of pens assigned to them, but they collect from the shippers whose livestock they handle, and turn over to the stockyards company, a yardage charge and the cost of feed. These expenses, together with the commissions charged, they deduct from the selling price before they remit the proceeds to the shipper.

All respondent market agencies are members of the Livestock Exchange, a voluntary unincorporated association.¹⁴

Tagg Brothers and Moorhead et al. v. United States of America, William M. Jardine, as Secretary of Agriculture, John G. Sargent, Attorney General, and James C. Kinsler, United States District Attorney for the District of Nebraska. Report of Special Master, printed in full in record before the Supreme Court at 57 to 145.

¹² 29 Fed. (2nd.) 750 (1928).

¹³ See note 1, *supra*.

¹⁴ One cooperative market agency and one independent firm, not a member of the Exchange, were not parties to the proceeding before the Secretary.

The schedule of rates and charges is a rule of the Exchange. The making of a charge other than that approved by the Exchange constitutes a punishable violation of the rules. Each firm is free to attract all the business it can get, subject only to certain Exchange limitations upon the amount of soliciting that can be done and upon the amount of expense that may be incurred for certain purposes. During 1925, the year for which specific information was ascertained, the respondent market agencies handled the equivalent of 127,065 cars of livestock.¹⁵

Some firms draw the bulk of their business from near-by territory, while others draw it from a distance. The receipts of some firms are made up largely of rail consignments; others, largely of driven-in and trucked-in business. The volume of receipts of the different firms varies greatly. In 1925 one firm received the equivalent of 6,572 cars and another the equivalent of only 249.

In deciding upon a proper method and a reasonable criterion to be followed in arriving at a reasonable, uniform rate to be charged by each of the respondent commission firms, the Secretary was confronted with a new and unprecedented problem in public utility rate-making. This the lower court recognized:

"It does not appear that any one of the numerous regulation cases which cause sharp division in the Supreme Court is exactly analogous to this. None of these cases where power to fix rates is denied present a business so plainly affected with public use consisting so largely of personal service."¹⁶

It is significant that in the decision of the lower court only two cases were cited, and these only as having a bearing

on the constitutionality of the Secretary's rate-making power.¹⁷ The opinion of the lower court is independent reasoning on the basis of the facts. There was no precedent.

III. The Criterion of Reasonableness

The criterion of reasonableness adopted by the Secretary was that a uniform schedule of rates to be charged by the respondent commission firms should be adequate to pay all reasonable expenses and a reasonable profit to all those firms which handle a reasonable volume of business in a reasonably efficient manner.

To the end that he might have the necessary facts before him, he caused an examination to be made into the records and accounts of the 59 firms to determine the revenues and expenditures of each, the character and volume of the business done by each, and such other facts as might have a bearing upon the question. On the basis of the facts in the record the Secretary set up a normal and reasonable, per-car cost schedule. An analysis of the expenditures showed that the expenses can be classified under the following heads: yardmen's salaries, all other salaries, travel, entertainment, advertising, overhead, Exchange assessments and dues, salesmanship, interest. From the record the per-car amount expended by each of the respondent firms for each of these particular items, as to cattle, hogs, and sheep, was ascertained as nearly as possible. All indirect expenses were allocated to each of the species on the basis of gross income received from handling it. After the expenses of each of the individual firms for each of these various items had been determined, a comparison of the 59

¹⁵ Livestock trucked in or driven in was converted into carloads by dividing the number of head of cattle, hogs, and sheep so arriving at market by the average number of head of each respective species arriving in a car of each.

¹⁶ 29 Fed. (2d) 750 at 753 (1928).

¹⁷ *Stafford v. Wallace*, 258 U. S. 495 (1922) and *Chicago Board of Trade v. Olsen*, 262 U. S. 1 (1923).

different amounts as to each expenditure was made for the purpose of identifying those firms which seemed to be incurring unusually low or unusually high outlays for that purpose.

When all the unusual and unexplainable cases had been discarded, the actual expenses of the remaining firms were observed to cluster about one amount for each of these items of expenditure. This amount the Secretary took to be the reasonable and normal expenses for getting a piece of work done or for getting a service performed. The Secretary did not use the average expenditure derived from the aggregate of all, on the ground that the average could be no more reasonable than the aggregate and that the aggregate included expenses which the record showed were not reasonable or necessary.

A major item to be included in a reasonable cost schedule is adequate compensation for those who do the actual selling of the livestock. The selling is done in part by employed salesmen and in part by owners of the businesses. The amount paid to the employee salesmen is determined largely by competitive bidding. The salaries of owners represent in the main the division of income after all out-of-pocket expenses are met. In arriving at a reasonable per-car cost of salesmanship to be included in a normal cost schedule, the Secretary

related the salaries which were actually being paid in a competitive market for the services of competent salesmen to what he judged from the record to be a reasonable year's work.¹⁸

The commission men attacked the method employed by the Secretary in arriving at a reasonable, per-car cost of salesmanship, holding that no such thing as a normal selling performance obtains in the livestock commission business; that the number of cars sold per year is neither the measure of an employee salesman's value nor does the character of the livestock business permit such a method of cost accounting.¹⁹

With respect to the Secretary's method of arriving at a reasonable, per-car cost of salesmanship, the lower court said:

"There is no uncertainty about how the Secretary came to use the per-car limit for selling as a cost item in service in arriving at the rates in his schedule. It was shown to the Secretary that some of the men who do this selling on the market sell a great many cattle and some sell very few. Some are working for high wages and some for much lower and others again as owners of the business charge all there is left in the business after paying expenses to this selling job performed by themselves.

"The Secretary was not concerned with nor attempting to say just what a cattle salesman should be paid. It was his task to find the maximum per car for this work beyond which anything charged would be unreasonable. To that end he considered how

similar reasoning he arrived at \$5.00 per car for cattle, \$3.00 per car for hogs, and \$5.00 per car for sheep as a reasonable salesmanship expense to be included in the rates.

¹⁸ As a test of the application of the selling salaries to the actual operation of the commission men's business, certain exhibits were presented by them to the court wherein salaries used by the Secretary were applied against the number of owner salesmen. To this were added the contract salaries paid to employee salesmen, and an expense account built up for each firm.

Giving some consideration to the small volume handled by some of the firms, profit and loss statements were built up from which an attempt was made to show that the majority of the firms would have no profit or would sustain a loss.

many cars a man could sell in a day if he had the cars to sell and also how many cars the men engaged actually do sell in the course of the business" (p. 754).

In addition to the per-car costs already discussed, the Secretary determined that an allowance of 50 cents per car for interest, and 25 cents per car for Exchange assessments and dues, and approximately 10% of gross income to cover business getting should also be included as reasonable costs.²⁰

In arriving at a schedule of rates to be prescribed the Secretary added a margin to the sum of reasonable operating expenses and interest. These margins were \$1.75 per car of cattle, \$2.15 per car of hogs, and \$4.95 per double-deck car of sheep, since the record showed that most sheep arrived in double decks. The commission men contended that certain items of necessary expense had been omitted from the cost account. Among these were interest on memberships not recorded on the books and bad debts, which the Secretary held were incurred in making cattle loans, a matter outside of his jurisdiction.

With respect to these claims and to the further one that the finding as to advertising was arbitrary, the lower court said:

²⁰ The Secretary's cost schedule was as follows:

| Item | Cattle | Hogs | Sheep |
|---|---------|---------|---------|
| Yardmen's salary..... | \$ 1.75 | \$ 1.50 | \$ 1.50 |
| All other salaries..... | 2.00 | 1.60 | 1.80 |
| Travel, entertainment, advertising, etc..... | 2.00 | 1.50 | 2.25 |
| Overhead, including in- creased rental of \$54,000..... | 1.75 | 1.50 | 1.75 |
| Exchange assessments and dues..... | .25 | .25 | .25 |
| Total..... | \$ 7.75 | \$ 6.35 | \$ 7.55 |
| Salesmanship..... | 5.00 | 3.00 | 5.00 |
| Interest..... | .50 | .50 | .50 |
| Total cost..... | \$13.25 | \$ 9.85 | \$13.05 |

"It may be that the Secretary was in error on these matters. But in the first place they were not called to his attention at the hearing before his examiner, and in the second place, it cannot be said that the rate that has been made up without direct allowance on account of them is in fact going to be confiscatory. In fact the item of expense estimated by the Secretary on an interest basis of seven per cent. for property used in the business seems to reach a capital asset large enough to include the omitted memberships. Notwithstanding that some agencies have had bad debts, and some have an expense for supervision, it may well be that the rates will work out in practice without oppression or unfairness. In advance of an application of the rates to the test of practice the court ought not to interfere because there is a mere possibility of inadequate return."

"It is hardly to be imagined that every possible cost of every one of the fifty-nine different concerns examined by the Secretary would be specifically referred to and covered in such an order as made by the Secretary. But where, as in this case, the rate-maker had provided a margin and spread for such contingencies the courts must keep hands off until there has been practical application" (p. 756).

A custom had grown up in the market according to which commission men had been charging half rates to traders operating in the stockyards. The Secretary found that the cost of handling this business was not such as to warrant this distinction and prescribed the same rates for all patrons. The commission men attacked this on the ground that charging of full rates to traders would drive many of them away from the market, thereby decreasing the income from traders. With respect to these half charges the lower court said:

"The court has no function where such forecasts of the future clash. Abstractly, speculation appears to be a feature of all open markets everywhere and might continue at South Omaha even without discriminatory commission rates in favor of speculators, but the future, and not the courts, must determine" (p. 756).

IV. Constitutionality

In addition to the attack which the commission men made upon the adequacy of the rates prescribed by the Secretary, they attacked the constitutionality of the Packers and Stockyards Act on the ground that the commission business, being a personal service, is not interstate commerce, and that the Secretary's order fixing a charge for such service is in violation of the Fifth Amendment. To this claim the lower court replied:

"I think that the issues in the Stafford case presented for the court's consideration the question of the Secretary's power to fix the rates of market agencies and that the language used in the opinion and the latter opinion—*Board of Trade v. Olsen*, 262 U. S. 1, 34—indicates a conclusion reached by the Supreme Court in favor of the existence of the power of the Secretary" (p. 751).

"The evidence convinces us that the services of the market agencies to which the Secretary's rate attaches are the services of a business, and that the business is affected with a public use. The public use is clearly shown by the circumstances under which the business is carried on" (p. 752).

The position of the lower court in holding that a personal service when devoted to a public use is subject to regulation was sustained by the Supreme Court in the following paragraphs:

"There is nothing in the nature of monopolistic personal services which makes it impossible to fix reasonable charges to be made therefor; and there is nothing in the Constitution which limits the Government's power of regulation to businesses which employ substantial capital. This Court did not hold in *Tyson & Bro. v. Banton* and *Ribnik v. McBride* that charges for personal services cannot be regulated. The question upon which this Court divided in those cases was whether the services there sought to be regulated were then affected with a public interest. Whether a business is of that class depends, not upon the amount of capital it employs, but upon the character of the serv-

ice which those who are conducting it engage to render.

"Plaintiffs perform an indispensable service in the interstate commerce in livestock. They enjoy a substantial monopoly at the Omaha Stockyards. They had eliminated rate competition and had substituted therefor rates fixed by agreement among themselves, without consulting the shippers and others who pay the rates. They had bound themselves to maintain uniform charges regardless of the differences in experience, skill and industry. The purpose of the regulation attacked is to prevent their service from thus becoming an undue burden upon, and obstruction of, that commerce. There is here no attempt to fix anyone's wages or to limit anyone's net income. Differences in skill, industry and experience will continue to be factors in the earning power of the several plaintiffs. For, the order fixes only the charges to be made in individual transactions" (p. 438).

V. Judicial Review

Beside the issues relating to the merits of the controversy, collateral ones involved the sufficiency of the order of the Secretary to inquire into the reasonableness of the whole schedule, or the insufficiency of it to permit him to investigate further than into the reasonableness of a rate increase.

A question of statutory construction was also involved as to whether the Secretary, who has power to determine the reasonableness of rates charged by a "stockyard owner or market agency" had the power to make an order with respect to rates charged by commission men. The court was called upon to determine whether commission men, included within the term "market agency" in the paragraph granting power over rates, were excluded from the term "operator" in the next paragraph giving power to issue rate orders. The court held that commission men are included under both terms.

The lower court, upon motion of the commission men, admitted additional

evidence without considering the sufficiency of that already before the Secretary. On the basis of *all* evidence presented, the lower court found the rates prescribed by the Secretary to be supported by the evidence and non-confiscatory.

The Supreme Court found the evidence before the Secretary *alone* to be substantial and sufficient to support his order. The power of a court to take additional evidence as to confiscation did not therefore arise, was not argued by counsel, and was not passed upon by the Supreme Court.

The Supreme Court did, however, discuss generally the propriety of a court's admitting and considering evidence in rate cases not presented to an executive officer charged with rate-making.

"The court granted the motion to appoint the master and authorized him 'to rule upon the admission and exclusion of evidence, subject to the court's review of the same.' In its opinion on final decree, the court justified the admission of the evidence, and considered the same, on the ground that the notice of the hearings before the Examiner did not advise plaintiffs that the Secretary intended to fix a new schedule of rates. As we have shown above, the court erred in holding that the notice given was inadequate. But if there had been a failure to give due notice, it would have been ground only for setting aside the order without inquiry into its merits, as having been made without notice and hearing. Such failure does not justify trying in the court, upon new evidence, the issues set forth in the motion to appoint the master.

"A proceeding under Sec. 316 of the Packers and Stockyards Act is a judicial review, not a trial de novo. The validity of an order of the Secretary, like that of an order of the Interstate Commerce Commission, must be determined upon the record of the proceedings before him—*save as there may be an exception of issues presenting claims of constitutional right, a matter which need not be considered or decided now.* On all other

issues his findings must be accepted by the court as conclusive, if the evidence before him was legally sufficient to sustain them and there was no irregularity in the proceeding. To allow his findings to be attacked or supported in court by new evidence would substitute the court for the administrative tribunal as the rate-making body. Where it is believed that the Secretary erred in his findings because important evidence was not brought to his attention, the appropriate remedy is to apply for a rehearing before him or to institute new proceedings. He has power and the duty to modify his order, if new evidence warrants the change. A rate order is not *res judicata*. Every rate order made may be superseded by another.

"There is also a contention that the rates prescribed are not merely unsupported by the evidence, but are confiscatory; and that the order is therefore void. Whether the additional evidence before the master was admissible on the issue of confiscation presents a serious question of practice which was not argued by counsel. The lower court held the additional evidence admissible, and, after considering it, reached the conclusion that the charges prescribed are not unreasonably low or confiscatory. This conclusion of the lower court conforms, in our opinion, to the evidence, whether the examination be confined to that evidence which was received by the Secretary or be extended to include the additional evidence introduced before the master and the court. The question of the admissibility of the additional evidence on the issue of confiscation may, therefore, be passed, and it is passed, without decision".

VI. Summary

Aside from the unique features of the case the decision of the Supreme Court is of general interest in two respects: (1) it clarifies some of the uncertainty heretofore surrounding the scope of judicial review of an administrative rate order, though the question of the power of a court to take additional evidence on confiscation is still left open; (2) it uses, as the test of power to regulate, the nature of the service, whether rendered by personal effort or by use of capital.

The Movement for Public Ownership of Power in Oregon

By EMERSON P. SCHMIDT

THE mountainous topography of the three Pacific Coast states, while possibly a drawback in numerous respects, is a distinct asset from the standpoint of abundant, potential hydro-electric energy. The public development of this tremendous source of wealth has been a question of wide interest for many years. In the United States as a whole only a little over $\frac{1}{3}$ of the electric energy produced by public utility power plants is secured from water resources, but in the far west water power is the chief source of electric energy (Table I).¹

TABLE I. PRODUCTION OF ELECTRIC POWER
BY PUBLIC UTILITY POWER PLANTS
IN 1926

| | Total Power | Water Power | Fuel Power |
|--------------------|-------------|-------------|------------|
| United States..... | 100.00% | 35.5% | 64.5% |
| Washington..... | 2.45% | 96.5% | 3.5% |
| Oregon..... | 1.13% | 70.3% | 29.7% |
| California..... | 9.35% | 81.8% | 18.2% |

An analysis of the potential and actual hydro-electric energy of the country (Table II) reveals that these three states contain about 38% of the hydro-electric energy of the United States.² Thus one is not surprised that the people of these states are very conscious of these valuable resources, and that they were among the first to make provision for the public ownership of power extending beyond the boundaries of municipalities.

The State of Oregon with less than 1%

¹ Herman Stabler, "A Nation's Water Power," 3 *Economic Geography* 434-46, at 445 (October, 1927).

² *Ibid.*, p. 439.

of the nation's people has about 10 to 12% of the potential hydro-electric energy. Of the three coast states Oregon is the least developed industrially. This fact, undoubtedly, makes its people especially anxious to secure the advantage of cheap power. The low electricity rates of Tacoma and Seattle in Washington and rates almost as low in many California communities served by publicly owned plants, along with the recent rapid industrialization of these two other states, leads readily to the popular conclusion that industrial progress has been retarded in Oregon because of high rates charged by private companies.

Before 1926 there was no extended organized movement throughout the State looking to the public ownership of power. It is true that a state senator, Mr. George W. Joseph, during his many years in office introduced numerous public power amendments in the state senate³ but his ideas were the subject of ridicule. In 1913 the Charter of Portland, the leading city comprising about $\frac{1}{3}$ of the State's population, was amended enabling it to issue and sell interest-bearing public utility certificates for the construction or organization of any public utility to be operated within the City, but this power has not been utilized. Throughout the State there were in 1929 four municipal plants generating all their current, including one generating for street lighting only; two generating part of their current, while three distributed

³ George W. Joseph, *Oregon's Prosperity Dependent upon Development of Its Water Power Resources*, pamphlet privately published, 1930.

TABLE II. POTENTIAL WATER POWER RESOURCES IN THE UNITED STATES

| | Available 90% of Time | | Available 50% of Time | |
|---------------------|-----------------------|------------|-----------------------|------------|
| | Horsepower | Percentage | Horsepower | Percentage |
| United States..... | 34,818,000 | 100.00 | 55,030,000 | 100.00 |
| Pacific States..... | 13,238,000 | 38.02 | 21,260,000 | 38.63 |
| Oregon..... | 3,665,000 | 10.53 | 6,715,000 | 12.20 |
| Washington..... | 4,970,000 | 14.27 | 7,871,000 | 14.30 |
| California..... | 4,603,000 | 13.22 | 6,674,000 | 12.13 |

energy only.⁴ Most of these plants are in small places; the largest at Eugene serves about 6,700 customers.

The Housewives' Amendment in 1926

In order to understand fully the history of the Oregon Water and Power Board Development amendment, which was initiated in 1926 by the Housewives' Council, Incorporated, of Portland and which was the first state-wide movement for public power to attract general attention, it is necessary to go back a year and examine the activities of the Oregon State Grange. At its annual convention in 1925, the Grange, which is the leading farmers' organization, passed a resolution authorizing the appointment of a committee to represent the Grange in drafting a constitutional amendment which would allow the State and municipalities to develop and operate hydro-electric plants and to sell the energy at cost.⁵ The committee worked with several other organizations and at the 1926 convention of the Grange reported that a public power bill and amendment had been filed with the secretary of state. The report was adopted with considerable discussion. A prominent granger, Mr. Chris Schuebel, who for years had

supported progressive social legislation in the state legislature, was the chief spokesman opposing the adoption. Later developments showed that Mr. Schuebel was in the pay of the power companies.⁶ However, the voters of the State were not given an opportunity to pass upon these measures. Sentiment among the rank and file of the members of the organizations initiating them was only lukewarm and finally the filing date came with insufficient names on the petitions. Most of the energy of the Grange was expended in support of a state income tax measure also initiated by it.

The Housewives' Council was more aggressive and succeeded in placing its measure on the ballot in 1926, but not without a struggle. The measure was rejected by the secretary of state on the advice of the attorney general because of alleged insufficiency of petitioners. The Constitution of Oregon requires that not more petitioners be required than 8% of the legal voters. The whole number of votes cast for justice of the supreme court at the last election is the basis for determining the number of legal voters necessary to sign such petition. At the previous election two justices were to be elected and three stood for office. This complicated mat-

⁴ Data from the Institute for Economic Research, bringing up to date the material in Herbert B. Dorau, *Changing Character and Extent of Municipal Ownership in the Electric Light and Power Industry* (Chicago: Institute for Research in Land Economics and Public Utilities, 1929).

⁵ *Proceedings, Oregon State Grange, Annual Session, 1925*, pp. 82-3.

⁶ *Federal Trade Commission Report, Senate Document, 70th Congress, 1st Session*.

ters. Admitting that the Constitution was ambiguous, the supreme court decided in favor of the Housewives' Council that 8% of the greatest number any candidate received for justice of the supreme court at the last regular election was the proper basis for ascertaining the number of signatures required for the initiative petition.⁷ Although the decision was a victory for the petitioners, the refusal of the State officers to accept the petition earlier was interpreted as an attempt to block the progress of the measure.

This amendment would have created the Oregon Water and Power Board and named the first commissioners.⁸ The Board was to be given full authority for the conservation, development, storage, and distribution of electric energy and water for irrigation and domestic purposes. The amendment would have authorized State bonds not to exceed 5% of the assessed valuation of property in the State. Bonds could also be issued for refunding purposes and to meet interest on debts; and interest-bearing, public utility certificates could be issued when needed. Taxes could be levied to carry on the purposes of the Board and the general State funds drawn upon to the extent of \$250,000 temporarily. The Board could produce any products deemed necessary or convenient to the accomplishment of the amendment and hire the necessary employees without limitations on wages. Finally, the Board could contract with the United States, other states, and their political subdivisions.

Arguments for the measure stressed the cheapness of public power. The following is typical: "A manufacturer in Portland who used 92,640 kw. hrs. in one month paid \$1,114.73, while the same

amount used in Tacoma cost \$490.00, a difference of \$624.73 per month or \$7,496.76 per year." Load factors were rarely mentioned. Oregon's progress was alleged to depend on the utilization of hydro-electric energy and its sale at cost to consumers. Energy for house-heating was assured at $\frac{1}{2}$ cent per kw. hr. if the amendment was passed.

Opposition to the amendment was enormous. The State Grange, disgruntled with the failure to place its measure on the ballot, gave only a half-hearted and last-minute endorsement to the Housewives' amendment. The Grange was interested chiefly in promoting its income tax measure. The *Bulletin* of the Grange was replete with arguments and encouragement for the income tax proposal, but not a word is found in favor of the power amendment until the issue of September 7, 1926, when the State Grange Executive Committee was reported as having adopted a resolution favoring the Housewives' plan, but intimating that the Grange's own amendment would have been more desirable.⁹ In the second last issue of the *Bulletin* which reached the farmers before the election of 1926 a brief paragraph stated that the writer (presumably the editor) would vote for the Housewives' measure even though he preferred that of the Grange which failed to get on the ballot. In the last issue¹⁰ to reach the readers before the election the Master of the Grange had a full column in favor of the Housewives' amendment, making numerous rate comparisons to the discredit of privately owned plants in Oregon. This was the only occasion on which he favored it in the public prints, so far as the writer is aware. After the failure of

⁸ Proposed Constitutional Amendments and Measures, Oregon, 1926.

⁹ *Grange Bulletin*, September 7, 1926, p. 6.

¹⁰ *Ibid.*, October 26, 1926, p. 7.

⁷ *Josephine M. Othus v. Sam A. Kozer*, 248 Pac. 146 (1926).

the amendment, the Grange *Bulletin* made no statement indicating its regrets. These events seemed to indicate that the Grange favored public ownership of power, but that the particular plan did not actually meet with its approval.

Organized labor opposed the Housewives from start to finish. As previously noted, the Housewives' amendment named the first commissioners to administer it, and the selection of these officers was alleged to have been arbitrary. The Oregon State Federation of Labor, at its annual convention in 1926, adopted the following report of its legislative committee condemning the amendment:

"We do not approve the arbitrary manner in which these persons were chosen. Some of them are personally objectionable to the organized workers because of their known antagonism to the cardinal principles of our organization. We were not consulted and had no knowledge of the personnel of the proposed board until the bill was filed. If the amendment carries, the vast projects contemplated will employ many hundreds of workers and we should like to have at least some little assurance that those workers will be employed under conditions which we approve."¹¹

Again, we are told:

"Their [the commissioners] selection was undemocratic. Not even a convention was called and given public notice that would attract those interested in public ownership. The political self-seekers quietly drafted the bill and inserted the names of the proposed commissioners."¹²

The statement also said that the amendment was so drawn as to discredit government ownership. In the official organ of the State Federation of Labor appeared a huge advertisement¹³ opposing the amendment, paid for by the Oregon Public Utility Committee. Sim-

ilar advertisements appeared in the leading newspapers throughout the State.

The bill received no endorsement by any large organization. Practically all newspapers opposed it. The Portland City Club made a study of the measure and found much fault with it,¹⁴ claiming that the measure was too sweeping to be written into the Constitution. To quote its report:

"Extremely wide powers, without adequate checks and controls, are given to a board of five persons, themselves named in the measure. If any portion of the act should be found unworkable, if it were found necessary to change a single provision of its context, another constitutional amendment would have to be passed by a vote of the people."

The report also made several more detailed charges against the measure: (1) While the Board might not buy any existing plant for more than \$500,000 without a vote of the people, yet it could spend any sum up to \$52,000,000 on new projects. (2) The Board could produce any raw or finished products deemed necessary or convenient to the accomplishment of the act. (3) The Board could contract with the United States, with other states, or political subdivisions thereof concerning the conservation and use of interstate and other waters. This provision would supplant in this important respect the powers delegated to the state legislature and only by another amendment could the Board be restrained. (4) The Board could exercise all powers mentioned in the act plus any more given by the legislature; thus the legislature might give the Board more power, but it might not take any away. (5) The Board was also given extensive powers to issue bonds and to hire employees.¹⁵

¹¹ *Oregon Labor Press*, October 22, 1926, p. 1.

¹² *Ibid.*, October 29, 1926, p. 1.

¹³ *Ibid.*, October 29, 1926, p. 5.

¹⁴ *Portland City Club Bulletin*, October 29, 1926, pp. 3-5.

¹⁵ *The Oregon Voter*, October 9, 1926, p. 12, made similar arguments as did practically all newspapers in the State.

Much opposition to the particular commissioners was in evidence as expressed in the journals mentioned and nearly all newspapers. Four of the five commissioners were over 60 years of age. None had had any technical experience in hydro-electric development, and most of them had little or no business experience with large undertakings. One was an automobile agent, one a retired farmer and newspaper man, one a farmer and fertilizer salesman, one a housewife and former school teacher, and the last was secretary-treasurer of a laundry. Without casting any doubt upon the sincerity and good will of these people, one must admit that they were perhaps not by training and experience the kind of people to administer hydro-electric development on a state-wide scale.

At the November (1926) election, the amendment was defeated, as might be expected under the circumstances, in spite of the diligent efforts made by the Housewives' Council and several other small groups. The proposal was defeated by about 4 to 1, with 111,779 majority against it. Even the friends of public ownership admitted after the election that it was probably for the future good of public ownership in Oregon that the amendment failed.

Thus the defeat of the amendment can be traced to several causes, chief among which were: (1) lack of sentiment for public power development; (2) naming of the first commissioners in the amendment itself; (3) the proposed personnel of the board; (4) the extensive powers of the board; (5) inability of the Grange to place its own measure on the ballot; (6) opposition of the private interests. The sponsors of the movement felt,

however, that their efforts afforded the necessary preliminary educational work for later developments.¹⁶

The Grange Amendment Adopted in 1930

The next important step was taken when the 1929 State Grange convention authorized its executive committee to draw up a plan for the formation of public utility districts. Consequently, in the spring of 1930 an amendment was submitted to the attorney general to enable him to prepare a title, as required by law, under which title it was filed with the secretary of state, to be kept by him for 20 days before signatures could be secured. On the last day before the expiration of this period the attorney general's wording of the ballot titles was attacked on the ground that they were not a fair and comprehensive statement of the subject matter of the proposed constitutional amendment. The case was argued and submitted on March 25, 1930, and the Supreme Court rendered its decision about 10 weeks later, on June 3. The Court decided in favor of the titles in these words, "We are convinced that the titles prepared by the attorney general are fair and not misleading. There is nothing in the proposed constitutional amendment which is not germane to the ballot titles."¹⁷ This proceeding was interpreted by certain labor and Grange leaders,¹⁸ as well as the rank and file members, as a scheme to obstruct the attempt to secure cheap power for the people of Oregon. The delay caused by this suit left only one month for securing the requisite signatures in November. On July 3, three hours before the closing time for filing petitions with the secretary of state, the amendment was filed with the proper number of signatures.

¹⁶ Interview with Mrs. Kate Bonham, Secretary, Housewives' Council, Incorporated.

¹⁷ *State ex. rel. Carson v. Hoss*, 288 Pac. 505 (1930).

¹⁸ Interviews with Dr. A. Slaughter and other leaders in the movement.

Another evidence of public ownership sentiment appeared in the 1930 spring primaries of the Republican party when Senator George W. Joseph was nominated as candidate for the governorship on a platform which included an urgent demand for public development of power and abolition of the state public service commission. His death a month later necessitated the nomination of his successor by the State Republican Committee. The previous platform was ignored and a man who did not favor government ownership of power was nominated. The followers of Senator Joseph then nominated an independent candidate, Mr. Julius L. Meier, who, on a platform similar to that of the late Senator Joseph, was named Governor of the State in the fall elections with a majority of 20,423 over the combined votes of the three opposing candidates. The Grange amendment was adopted with a majority of 32,998 in spite of a vigorous newspaper, radio, and personal campaign on the part of the opposition.¹⁹

The Oregon amendment,²⁰ patterned after the California law, provides for the creation of public utility districts in about the same way that school, irrigation, and other districts may be formed. It does not divide the State into districts but these may be formed by the resident voters of territory which is contiguous or otherwise, and may consist of incorporated municipalities with or without unincorporated territory. All present political subdivision lines may be disregarded. It is anticipated, however, that in many cases the present county, municipal, and other district boundaries will be found suitable for the new districts. Their purposes shall be to supply water for domestic and municipal uses, and for the development of water power and/or electric energy and to dispose of

and sell the same. The districts are to be managed by boards of five directors who must be residents of the district. Capital may be raised by taxes and by evidences of indebtedness issued, sold, and/or assumed. No limit is placed in this connection. The districts will have the power of eminent domain, may enter into contracts, may acquire and hold real and other property necessary to the business of such district and acquire, develop, and/or otherwise provide for a supply of water, water power, and electric energy. The products may be sold, distributed, and/or otherwise disposed of within or without the territory of such districts. Finally, the legislature shall and the people may provide any legislation in addition to existing laws that may be necessary to carry out the provisions of this amendment.

From the time that its content was first made known the amendment was under constant criticism. That a general statute would have sufficed to legalize the creation of utility districts was generally agreed. But the sponsors of the movement deemed an amendment desirable because under it the districts to be formed could be relieved from the usual constitutional debt limitations. Next to the charge of "socialism," this was the chief point of attack. Public officials have at times in the past shown a tendency to plunge into excessive debt and perhaps some arbitrary limitation is necessary. The answer to this charge was that a public utility district differs from most other subdivisions of a state in that the former is expected to be self-supporting except for the initial necessary capital. Under wise administration every dollar of debt will be balanced by a dollar's worth of earning assets. Furthermore, the market for securities of the district exerts a practical control

¹⁹ Letter from Mr. Hal Hoss, Secretary of State.

²⁰ Oregon Constitution, Article xi, § 12.

over indebtedness since the projects must be sound enough to induce banking and investment houses to take the issues.

Another objection frequently raised during the pre-election period was the temptation which the amendment was said to offer to ambitious promoters to gerrymander the boundaries of a district so as to bring in property from all corners of the State to help pay for the district's liabilities. It was alleged that parcels of land would be brought into a district even though they could never hope to be served by the district's power plants. Prominent attorneys²¹ denied that this would be the case. They argued that even though the wording of the amendment would bar the legislature from limiting taxing and bonding powers since these are given without limit, the amendment invites the legislature or the people to formulate such legislation as will give the act effect. Laws can thus be enacted to forbid annexation of any territory without giving it a separate vote to determine its consent, just as cities have been prevented from adding territory without consent.

The Significance of the Utility District Movement

The Oregon amendment²² may be considered part of a wider movement to re-adapt and enlarge municipal ownership and yet to avoid the obstacles to state-wide ownership of utilities. In Ontario municipalities have been united for two decades under the direction of the Hydro-Electric Power Commission for the purpose of developing electrical energy. In this case the localized nature of the

source of supply of energy at Niagara Falls accounted largely for the form of organization adopted. In Oregon the natural water power resources are widely scattered and the movement there is primarily a protest against the "power trust" and an attempt to secure cheap rural electrification. At the same time it embodies a plan to adapt municipal ownership in the electrical utility industry to changing conditions.

It is a fact of common notoriety that all has not been well with municipal plants.²³ While their total proportionate output has not changed materially, the number of municipal plants has decreased seriously. In 1923 there were 3,066 such plants in the United States and at present probably not over 2,000. About 1,500 plants had changed from municipal to private ownership between 1886 and the close of 1927, most of which change was confined to the last six years. Many cities which have retained their own distribution systems have recently turned to private companies for the supply of energy in bulk. But it is significant that the number of private plants declined even faster than the municipal plants because of consolidations. Moreover, communities with large population have seldom been found to change from public to private ownership. In fact, Dr. Dorau found that in communities having a population of 2,500 or over, 71.6% of all municipal establishments ever originated were still in existence at the end of 1927.

These facts lead to the conclusion that technological changes in the electrical industry, which have caused the decline

²¹ Editorial, *Eugene Guard*, October 31, 1930.

²² Several other states have adopted somewhat similar legislation. In 1919 Alabama passed a statute which allows counties to engage in public utility industries and allows two or more municipalities to join for the same purpose under certain circumstances (Code 1923, §§ 2318-2325). In 1921 California passed a stat-

ute allowing the creation of public utility districts (Stat. 1921, p. 245, as amended by Stat. 1927, c. 35, 49 and 77 and Stat. 1929, c. 31). In the elections of November 4, 1930, Washington and Nebraska adopted initiative measures which allow public ownership of utilities along the same general lines as in Oregon.

²³ Dorau, *op. cit.*, *supra*, n. 4.

in number of separate private plants, have also caused the number of municipal plants to decline.²⁴ That the private utility interests interpret the district movement as an attempt to rehabilitate municipal ownership in order to take advantage of these technological changes is evidenced in a recent public utility investigation by the following statement:

"The request of the League of Municipalities of Wisconsin for legislation that will enable the cities to form power districts and to interconnect municipal plants, is an admission that the utility business is no longer a local industry and that if municipal ownership is to continue, the cities must be permitted to expand their field of operations . . ."²⁵

The tremendous, recent improvements in coal utilization, enlargements of generating plants, and elimination of waste, as well as improvements in the technique of transmission and distribution, have given an ever-increasing advantage to large-scale plants. The holding and management companies have developed in response to these changes and have in turn stimulated them. Another quotation from the argument of the private interests in the recent investigation is pertinent:

"The electric utility that two decades ago was largely a local institution, detached from other utilities and serving only a single community, has given place to a great organization of many utilities, large and small, tied together wherever possible by transmission lines and supplied from efficient,

centrally located, high capacity stations. The old form of local management with . . . inadequate equipment and lack of capital, has undergone a similar change, being replaced by highly trained central organizations directly in touch with each locality served and keenly alive to its needs . . . The management company provides each locality with management service far superior to what a single private or municipal plant could command, and generally at lower cost than independent management. It brings together and maintains a permanent staff of trained engineers, accountants, lawyers and rate experts—specialists in the various phases of utility management . . ."²⁶

The benefits which have accrued to users of electrical services under this movement are undoubtedly even though it may be argued that the new, though lower, rate-schedules have allowed the companies more than compensatory returns from an economic and legal point of view.²⁷ Promoters of the public utility district movement clearly recognize the advantages which will accrue to a system of public ownership under which small local plants may be dismantled and the district needs supplied from highly efficient, centralized, large-scale plants. Not only will more efficient mechanical equipment be installed under such conditions, presumably, but the district will be able to secure a higher grade of managerial and technical ability. Some advantages may accrue from larger and wiser purchases, lower capital costs, uniform accounting and designing.

These savings will depend somewhat on the size of the districts. If they ex-

²⁴ Municipal plants in many states are not allowed to operate outside the city limits. Even where they are allowed to do so it is an empty power because debt limitation laws prevent expansion in many cases. Oregon law allows such expansion, including competition with private lines. The law was upheld in *Yamhill Electric Co. v. McMinnville*, 274 Page 118 (1929), and the United States Supreme Court dismissed an appeal for want of a substantial federal question. The excessive prices frequently offered by competing holding companies for the municipal plants also accelerated the

latters' decline; see F. A. Staten, "Fort Atkinson, Wisconsin: a Case Study of Municipal Ownership," 5 *Journal of Land & Public Utility Economics* 143-149 (May, 1929).

²⁵ Report of the Wisconsin Interim Legislative Committee on Water and Electric Power, 1929, p. 198.

²⁶ *Ibid.*

²⁷ 1928 *Proceedings*, Convention of the National Association of Railroad and Utilities Commissioners, pp. 504-11.

tend to only one or even several counties, gains equivalent to those of a private holding and management company may be impossible of achievement unless the population is quite dense. On the other hand, recent improvements in the efficiency of the Diesel engine²⁸ along with cheap fuel oil are said to give some important advantages to small plants, especially in view of the mounting transmission costs of the large interconnected systems.²⁹ Thus the regional ownership of public utilities, stimulated in part by technological changes in private electrical plants, may in turn be given a market advantage over these same large-scale, interconnected, private plants by a new technological factor.

If action is taken under the new amendments in Oregon and other states, some additional legislation will be necessary immediately. The districts should no doubt be subject to some regulation, especially in regard to the form of records and accounts to be kept and the making of annual reports. The general level of rates need not be subject to regulation but disputes will occur in regard to class rates. Many problems and disputes will arise concerning competition with private companies already in the field and conditions under which their assets are

purchased. The prospect of these and other problems leads to the conclusion that the state public service commission ought to be given immediate jurisdiction; yet the home rule philosophy embodied in the regional movement must not be thwarted by giving the commission the degree of power which it exercises over private companies, if the movement is to be encouraged. Although the Special Commission on Control and Conduct of Public Utilities in Massachusetts decided that legislation providing for such districts was not imperative immediately, yet it makes similar arguments regarding regulation.³⁰

However, it is possible to overestimate the significance of the utility district movement. Even sponsors of the movement in the State of Washington argued that, if such districts are legalized, the power will be used seldom but will serve merely as a threat to private companies. In Oregon it was maintained that the farmers and small villages ought to have the same power to go into the electric business as that enjoyed for many years by larger cities. If the power now granted is used as rarely as larger cities use their power, the new movement will not prove as serious a menace to private interests as they suppose.

²⁸ E. J. Kates, "The Growing Field of the Diesel Engine," *Bulletin*, No. 51, Public Ownership League of America, Chicago.

²⁹ Paul Jerome Raver, "Municipal Ownership and the

Changing Technology of the Electrical Industry," 6 *Journal of Land & Public Utility Economics* 241-257, 386-398 (August, November, 1930).

³⁰ Report, 1930, p. 77.

The Movement for Public Ownership of Power in Washington

By ELLIOT MARPLE

THE contest over public and private operation of power companies during the past eight years in the State of Washington has developed three distinct phases. (1) The Seattle and Tacoma municipal plants have wanted the right to sell electricity outside the city; (2) Municipal ownership advocates have sought to give rural districts the right to build and operate their own power plants; (3) Private ownership supporters have sought to tax the now tax-exempt municipal power plants.

In 1924 the "Bone Bill," introduced by Initiative Petition No. 52, which aimed to enable the Seattle and Tacoma municipal power plants to sell outside their corporate limits and to condemn private systems,¹ was defeated at the polls. Late in 1928 the State Grange circulated petitions for a District Power Bill (Initiative to the Legislature No. 1), which would extend to rural districts the right to own and operate municipal power plants. The initiative petition with 7,900 more than the necessary 50,000 signatures was submitted to the legislature in January, 1929. On Febru-

ary 1, the senate rejected the measure, 17 to 20, and it automatically went on the ballot in November, 1930. In November, by a vote of 152,487 to 130,901, the people approved the measure, and it became law.

The District Power Bill permits any section of the state to own and operate its own system of electric power, domestic water, or irrigation. For this purpose it authorized the establishment of municipal corporations, to be known as public utility districts, which may or may not be co-extensive with a county, provided no voting precinct be thus divided. Contiguous districts may be consolidated. Districts may be formed as follows: If they are to include a whole county, the district may be proposed either by the board of county commissioners or by petition of 10% of the qualified electors of the county, based on the last general county election. The proposition must then be submitted to the voters in the proposed district at the next biennial general election. A public utility district which does not include a

¹ The largest electric power company in Washington is the Puget Sound Power and Light Co., which is controlled by Engineers Public Service Co. and supervised by Stone & Webster, Inc. It serves primarily the more thickly populated area around Puget Sound. The Washington Water Power Co., controlled by American Power and Light Co. and supervised by Electric Bond and Share Co., serves a large part of eastern Washington. The Pacific Power and Light Co., under the same control and supervision as the Washington Power Co., serves southeastern Washington. Smaller territories are served by the Northwestern Electric Co., also under the same control and supervision as the Wash-

ington Water Power Co., Grays Harbor Railway and Light Co., controlled by Federal Light and Traction Co., and Pacific Northwest Public Service Co., controlled by Central Public Service Corp. Several other power companies serve only one or two towns or cities each. The largest municipal plant is at Seattle, and competes with the Puget Sound Power and Light Co. Three municipal plants generate part of the current they distribute, and nine others purchase all their current. (Data on municipal plants from the Institute for Economic Research, supplementing material in Herbert B. Dorau, *The Changing Character and Extent of Municipal Ownership in the Electric Light and Power Industry*) Chicago: Institute for Research in Land Economics and Public Utilities, 1929).

whole county may be formed by petition of electors of the proposed district. The county commissioners then hold a hearing as to the boundaries; but may not include therein further parcels of land without the written consent of the owners. Here likewise the proposition must be submitted to the voters of the proposed district.

The powers of a public utility district are vested in three commissioners, nominated by petition,² elected by divisions in the district, and serving a three-year term without pay. They must appoint a manager as chief administrator who serves at a salary fixed by the commissioners, is responsible only to them, is removable at their will, and may not take part in the election campaign of any candidate for district commissioner.

The chief powers granted public utility districts may be summarized as follows: (1) to survey power sites within and without the district; (2) to lease, build, buy, condemn, and operate electric generating plants and distribution lines and all necessary facilities, and systems for irrigation and domestic water, *within* and *without* the district, and for these purposes to take, condemn, and buy public and private property, franchises and property rights, including State, county, and school lands, and littoral and water rights; (3) to exercise the right of eminent domain; (4) to buy and sell electric current within and without the district, with exclusive authority to regulate use, rates, distribution and service, free from the jurisdiction of the state director of public works and the division of public utilities; (5) to acquire the right to divert lakes and water-courses, regardless of whether such

waters are navigable, or owned by the State, or given over to public use; (6) to build dams; (7) to levy a tax on the district not exceeding two mills a year exclusive of interest and redemption of general obligation bonds; (8) to fix boundaries of local assessment districts and to levy local assessments; and (9) to incur indebtedness and issue general obligation or utility bonds, with the reservation that an issue of bonds which will bring the total indebtedness of the district to more than $1\frac{1}{2}\%$ of the value of its taxable property must be approved by the voters. In other respects the laws of the State govern such matters.³

The act also provides that the county treasurer shall act as the public utility district treasurer, and that material and work costing more than \$5,000 shall be done by contract, the bids for which must be opened in public. Utility districts may sell their property on a $\frac{3}{5}$ vote of citizens voting on the sale.

The chief arguments used for the bill may be briefly summarized: (1) Country residents should have the same right as city people to operate and own power plants in order to get lower rates; (2) The power resources of the State should be saved for the people and used for service, not profits; (3) The measure is simply an enabling act which in itself creates no bond issues and levies no taxes; it is merely a club to hold over the power companies.

Against the bill the chief arguments used were: (1) Higher taxes would result from forming a new taxing body and removing from the tax rolls the property of private utilities, which, if condemned by public utility districts, would be tax exempt; (2) The public utility district

² The petition must be signed by 100 qualified electors of the public utility district, except that in districts of less than 4,000 population the petition must be signed by 10% of the registered voters of the district.

³ The act provides "that no public utility owned by a city or town shall be condemned hereunder, and none shall be purchased without submission of the question to the votes of the utility district."

commissioners are given extreme powers and can form local assessment districts and issue bonds without the vote of the people; (3) In Seattle and Tacoma opponents of the bill stated that public utility districts might be formed to condemn the hydro-electric generating plants of the municipal power systems of these two cities; in eastern Washington opponents of the bill said that Seattle and Tacoma were trying to get control of power sites and lines in eastern Washington at the expense of the residents of that part of the State.

These were the arguments stressed most in the campaign; but the vote on the bill was scarcely on its merits. A copy of the bill, with arguments pro and con, was mailed in September by the secretary of state to all registered voters. As the bill was approximately 9,000 words long, written in legal phraseology and with sentences sometimes half a page in length, it is doubtful whether the average voter, if he read the bill through, could have analyzed and understood it. It should also be remembered that the average voter had no knowledge of existing restrictions in the State Constitution or in the statutes that would govern such municipal corporations as public utility districts. The vote on the bill was probably not so much for the bill as against the private power companies.

Two main reasons may be assigned for the passage of the bill. The first was a reaction against the methods of private power companies. The people of Washington seem from the very founding of the State to have been opposed to monopolies, for the Constitution declares, "monopolies and trusts shall

never be allowed in this State."⁴ In 1915 and again in 1921 the legislature passed bills requiring a new public utility, whether private or municipal, to obtain from the director of public works a certificate of necessity before entering competitive territory.⁵ Both these bills were referred to the people, and defeated in every county of the State. The chief argument against them was that they gave the existing power companies a virtual monopoly of the State's water power.

In 1913⁶ the legislature passed a law forbidding assessors to consider the rate-making valuation of public service companies when fixing their valuation for taxation purposes. During the power-bill campaign in 1930 this law was constantly cited by Grange leaders, and the charge of tax dodging was thrown at the power companies. Backers of the bill cited the City of Puyallup as an example. The *Grange News*, official organ of the Grange, stated that the Puget Sound Power and Light Co. was paying taxes in Puyallup on an assessed valuation of \$15,000, whereas in the condemnation suit the Company valued its property in the City at \$400,000, and the jury set the value at \$216,000.⁷ Senator Dill stated that the power companies of the State figure rates on a property valuation of \$153,000,000 but pay taxes on only \$16,500,000.⁸

For some years a strong antipathy against the power companies had been growing among rural settlers because of alleged high charges for service extension lines. Grange officials represented that for lines around Puget Sound, costing approximately \$900 a mile, customers were often charged \$1,300 a mile, and

⁴ Art. 12, §22. The Constitution was drawn up and ratified in 1889.

⁵ Code (Remington) 1915, §8626-74a and Comp. Stat. (Remington) 1922, §10412.

⁶ S. L. 1913, p. 662, §1; Comp. Stat. (Remington) 1922, §10441.

⁷ *Grange News*, April 5 and November 5, 1930.

⁸ *Seattle Star*, October 5 and 31, 1930. In Washington the assessed valuation is calculated on a basis of 50% of full valuation.

that when deeded to the power company, as demanded before service was connected, this higher cost was used as a basis for rate-making. Many similar lines were cited as having been built under the supervision of Tacoma Municipal Light engineers for \$600 a mile and none for more than \$1,000 a mile.⁹ Whether false or true, these charges aggravated the farmers' discontent with the power companies.

Further sentiment against the power companies of Washington was aroused by reports from the Federal Trade Commission of under-cover methods in general use. On March 28, 1929,¹⁰ N. W. Brockett, public relations director of the Puget Sound Power and Light Co. and vice-president of the Northwest Electric Light and Power Association, a geographical division of the National Electric Light Association, admitted in testimony before the Federal Trade Commission that the professedly unbiased survey of the Seattle Municipal Light System, made by the Voters' Information League of Seattle, had been subsidized by the power interests, and that 73% of the League's expenses in 1927 and 89% in 1928 were paid by the Puget Sound Power and Light Co. The survey had purported to show that the Seattle Municipal plant was running at a loss, despite statements to the contrary in its official report. His testimony threw light on the 1924 campaign on Initiative No. 52 when he stated that six power companies of the State contributed on the basis of their gross earnings \$175,050 to defeat the bill; of this amount the Puget Sound company paid 44%.¹¹ Furthermore, advertisements signed by citizens' committees and statements signed by prominent citizens

throughout the State were paid for by the power companies, and sometimes written by their employees. Even the committees themselves were organized by company employees. Newspapers were given not only much advertising copy, but cartoons and editorial suggestions. On election day power company employees distributed printed matter against the bill at the polls. Mr. Brockett had also a \$2,500 expense fund for each session of the legislature, with two men to help in lobbying. Previously¹² Mrs. Claire K. Tripp had testified before the Federal Trade Commission that Puget Sound Power and Light propaganda had been sent to all State normal and high schools, in the form of a monograph written largely by Mr. Brockett, printed by the Puget Sound company, and distributed through the Washington Industries Education Bureau, of which Mrs. Tripp was the executive.

Apparently the power companies overplayed their hand. Such violent opposition made the voters feel that the power bill must be for their good, and they were further confirmed in this belief by the strong radio talks of Senator Dill, wherein facts reported by the Federal Trade Commission were broadcast. Indeed, one editor at Olympia stated that the companies defeated themselves by their intense antagonism to the bill. Advice from citizens' committees and leagues which saw danger in some of the bill's provisions was disregarded, and the passage of the bill despite the opposition of more than $\frac{3}{5}$ of the newspapers in the State attests the independence of the voters.

A second general factor contributing to the success of the bill was the grow-

⁹ *Grange News*, March 20, 1930.

¹⁰ Senate Document No. 92, 70th Congress, 1st Session.

¹¹ The six companies named were the Puget Sound Power and Light Co., Washington Water Power Co.,

Pacific Light and Power Co., Grays Harbor Railway and Light Co., Portland Electric Light and Power Co., and Willoughby Harbor Light and Power Co.

¹² October 11, 1928.

ing desire of country residents to obtain city advantages at no more than city costs. Country residents have not felt the prosperity of the cities. They have seen city wages go up and the city work-day shortened, but neither increased profits nor shorter hours have come to them. They may admit the power companies' contentions that Washington farms have become electrified to a greater degree than those in any other state except California;¹³ yet high line-extension charges and higher rates have created jealousy against cities and city business. A country resident is therefore slow to give to city dwellers any political or economic advantage not shared by himself.

When the Grange sponsored a bill that promised electricity at city rates the farmer saw at last an opportunity to hear the power company say "please" to him. He agreed with such statements as that of the *Enumclaw Herald*,¹⁴ which declared that the opposition by Seattle and Tacoma Chambers of Commerce was a sign that city business interests were lined up against rural interests. Thus the more cities and power companies fought the bill, the more the farmers favored it.

Official endorsement was given the bill by the State Federation of Labor. At Bellingham the president stated that anything the people could do to secure ownership and operation of natural resources would help distribute the wealth that now goes to the rich to make them richer. Probably a fair assumption is that the current business depression added considerable weight to the labor appeal.

The frequent broadcasts of Senator Dill carried much weight, particularly in eastern Washington, his home section. He declared the bill was merely an enabling act, by which lower rates could be forced from the power companies; and though he thought these private companies were more efficiently and economically managed, the threat of competition alone could lower their rates.¹⁵

Against these forces the most telling attack of the power companies and chambers of commerce was the prediction that the bill would cause higher taxes. Removing much private property from the tax rolls; allowing public utility districts to levy additional tax burdens; issuing bonds without a vote of the people—these points were constantly stressed as dangerous.

Election figures show that only $\frac{1}{2}$ the registered voters voted on the bill, and that support for it came from rural districts. The total registration for this election, as reported by the secretary of state, was 559,898,¹⁶ but only 64.3% or 360,087 people actually voted. A total of 283,388 voted on the bill, which is 50.6% of the registered voters and 78.7% of the number who went to the polls.

The figures indicate that the counties in the territory of the Puget Sound Power and Light Company, where the hardest campaign was made against the bill, voted for the bill by a scant 10,000 majority. King, Snohomish and Kittitas counties voted against the bill but, if the vote of the largest city in each of these counties—Seattle, Everett, and Ellensburg, respectively—is deducted from the total, in each of these counties the areas outside the cities are found to

¹³ *Electric Light and Power Industry in the United States*, Statistical Supplement, revised to January, 1930 (New York: National Electric Light Association), p. 22.

¹⁴ November 7, 1930.

¹⁵ During the campaign the power companies an-

nounced several rate reductions. The Puget Sound company even announced rate reductions to be effective in 1931 and 1932. These reductions were cited by advocates of the bill as proof of its effectiveness.

¹⁶ The 1930 Census gives the population of the State as 1,563,396.

have voted for the bill. The 15 cities of the State having more than 10,000 population each and a combined vote on the power bill of 140,530 voted against it by 7,746. This handicap was more than made up outside the cities, for the total majority for the bill was 21,586.

Surprise was expressed that Seattle voted against the bill; for here was a city already served by a large municipal plant, and yet it refused to allow other districts a similar privilege.¹⁷ Two factors probably influenced this vote: On the one hand, Seattle seems to be only mildly in favor of municipal ownership¹⁸ and does not wish to give to rural districts the chance to increase taxes; on the other hand, the Puget Sound company, with its efficient service, has many supporters as well as the strong backing of most business and financial interests. Furthermore, a considerable number of that Company's 18,000 Washington stockholders live in Seattle.

What will be done now that the power bill is law it is rather too soon to guess. By the terms of the bill no power districts may be formed until the next

general biennial election, which comes in November, 1932. At present there is agitation in three counties to form public utility districts—in Okanogan County in the territory of the Washington Water Power Co., and in Whatcom and Skagit Counties in the territory of the Puget Sound company. How serious this movement is can not yet be told. On the formation of districts the policy of the Grange is to go slow and make no mistakes.¹⁹

The vote against Initiative No. 52 in 1924 halted the attempt of the municipal plants to sell power outside the city limits. Apparently the successful district power bill has satisfied the agitation to allow rural districts to own and operate power systems. The third agitation in recent years, that to tax municipal power plants, has yet to come to a head. Indications point to the settlement of this issue soon. Two forces are working for the tax—officials of the power companies, who feel that it is unfair for them to compete against tax-free power systems, and tax revisionists, who are trying to equalize and reduce taxes in the State.

¹⁷ Seattle voted 27,242 for and 32,413 against the bill.

¹⁸ The City's unfortunate experience with a money-losing traction system, regardless of whether the loss may be attributable to the character of the owner-

ship or not, has reacted locally against municipal ownership.

¹⁹ *Grange News*, December 5, 1930.

The "Agricultural Ladder" in a High Tenancy Region

By CARL F. WEHRWEIN

IN two previous articles¹ the writer described the pre-ownership and post-ownership steps on the "agricultural ladder"² in Newton Township, Manitowoc County, Wisconsin, a region with a low percentage of tenancy. The objects of the present article are three-fold: (1) to make a similar analysis for the Township of Bradford, in Rock County, Wisconsin, which was chosen primarily because of its relatively high percentage of tenancy, although other differences between it and Newton were also carefully noted; (2) to compare the types of "agricultural ladder" found in each of these two townships; and (3) to discover, if possible, the conditions which give rise to these different methods of attaining farm ownership.

Description of the Areas

The background information concerning Newton Township and the 201 farmers included in that study has already been given,³ and much of it will be repeated in the process of comparison with Bradford. Suffice it to say, therefore, that Newton is a low tenancy region; is devoted predominantly to dairying; and is inhabited by farmers $\frac{3}{4}$ of whom are of German descent.

The accompanying map shows the location of both townships. The town-

ship of Bradford is in Rock County, one of the tier of counties bordering on Illinois. Bradford is one of the four townships which are situated along the eastern boundary of the county, adjoining Walworth County, and is the second from the south. It is about 55 miles southwest of Milwaukee and 40 miles southeast of Madison. Thus Bradford is about 110 miles southwest of Newton; in latitude it is about 95 miles to the south. Bradford is a typical township of 36 square miles and therefore has an area of approximately 23,040 acres according to government survey; the area of Newton is about 900 acres less.

The main soil types are the so-called Waukesha silt loam, deep phase; the Carrington silt loam and the Miami silt loam, deep phase.⁴ The soil is very good, the northernmost tier of sections being as good agricultural land "as ever lay outdoors," as one inhabitant put it. Bradford is somewhat superior to Newton in this respect; the soil of the latter is perhaps just as productive, but there is more hilly and more marsh land. Newton also has numerous creeks and half a dozen lakes, while Bradford has only one creek and no lakes at all.

Bradford has an average annual rainfall of 32 inches, which is about two inches more than Newton has; and its

¹ Carl F. Wehrwein, "The Pre-Ownership Steps on the 'Agricultural Ladder' in a Low Tenancy Region," *4 Journal of Land & Public Utility Economics* 417-425 (November, 1928), and "The Post-Ownership Steps on the 'Agricultural Ladder' in a Low Tenancy Region," *6 Journal of Land & Public Utility Economics* 65-73 (February, 1930).

² To readers not familiar with this phrase in the literature of agricultural economics, an explanation may be

appropriate. The concept, "agricultural ladder", refers to the various steps by which individuals gradually acquire unencumbered ownership of a farm.

³ See first article, *supra* n. 1.

⁴ A. R. Whitson, W. J. Geib, Guy Conrey, W. M. Gibbs and A. E. Taylor, "Soil Survey of Rock County, Wisconsin," *Bulletin No. 53B*, Wisconsin Geological and Natural History Survey (1922).

average growing season is 160 to 170 days, which is about five days shorter than that of Newton. The length of the growing season reflects the influence of Lake Michigan on the northern area, for Bradford is about 50 miles from the lake.



The mean temperatures of the various seasons in Bradford are as follows: spring, 45 to 47 degrees F.; summer, 69 to 71 degrees; autumn, 50 to 51 degrees, and winter, 20 to 22 degrees. The autumn and winter temperatures are about the same in both townships, in spite of the difference of nearly 100 miles in latitude which is overcome by the influence of Lake Michigan on the Newton area. The spring and summer temperatures of Bradford are higher; the temperatures of Newton in these seasons are also more attributable to lake influence than to difference in latitude, since other parts of Wisconsin in the same latitude as Newton are within a degree as warm in summer as Bradford.

In spite of the fact that the growing season of Newton is a little longer than

that of Bradford, the higher spring and summer temperatures of the latter township; i. e., the greater "effective heat" (the mean temperature during the growing season above 42, the latter being the minimum required for plant growth) of Bradford make it better adapted than Newton for corn growing, and consequently for hog production. So while dairying is also the main farm enterprise of Bradford, this locality is not so exclusively a dairy region as Newton. Corn and hogs are also important farm products, for Rock County is on the edge of the Corn Belt.

Tenure and the Influence of Nationality

The land of Bradford began to go into private hands in 1839. In 10 years practically all of it had been taken up. We see then that the settlement of this township, as far as the bulk of the settlers is concerned, antedated that of Newton by about 10 years. One hundred and thirty-three farmers were resident in Bradford in 1929. The necessary data were obtained for 92 of them. Of these, 47 are tenants and 45 are owner-operators. The percentage of tenancy in the group studied, therefore, is 51.08, as compared with 54.88% for the entire township.

TABLE I. PERCENTAGE OF FARM TENANCY IN MANITOWOC AND ROCK COUNTIES, WISCONSIN, BY CENSUS PERIODS, 1880-1925*.

| Year | Percentage of Tenancy | |
|-----------|-----------------------|-------------|
| | Manitowoc County | Rock County |
| 1880..... | 1.92 | 20.99 |
| 1890..... | 2.33 | 26.02 |
| 1900..... | 3.78 | 35.38 |
| 1910..... | 3.58 | 32.37 |
| 1920..... | 4.33 | 32.76 |
| 1925..... | 4.14 | 33.23 |

*Adapted from the United States Census.

The trend of tenancy in Manitowoc and Rock Counties since 1880 by census periods is shown in Table I. It will be seen that the amount of tenancy of Bradford township is considerably higher than that of Rock County as a whole.

Table II shows the nationality of the 92 Bradford farmers. Bradford differs from Newton in the large proportion of farmers of English extraction found in the former area. English farmers are not found in Newton at all. The number of farmers of German descent in Bradford is proportionately lower.

TABLE II. NATIONALITIES OF 92 FARMERS OF BRADFORD TOWNSHIP, ROCK COUNTY, WISCONSIN*.

| Nationality | Number | Percentage |
|----------------|--------|------------|
| Total..... | 92 | 100.00 |
| German..... | 38 | 41.30 |
| English..... | 36 | 39.13 |
| Norwegian..... | 4 | 4.35 |
| Scotch..... | 4 | 4.35 |
| Dane..... | 4 | 4.35 |
| Irish..... | 3 | 3.26 |
| Swedish..... | 2 | 2.17 |
| Belgian..... | 1 | 1.09 |

*Original data.

The opinion is advanced that nationality has not had any appreciable effect on the amount of tenancy in either township, as one would be inclined to think, considering the low amount of tenancy and the high percentage of farmers of German extraction found in Newton. Evidence to support this contention may be drawn from the fact that there is more tenancy among the farmers of German than of English descent in Bradford. Of the 38 present German farmers, 25, or 65.79%, are tenants, while of the 36 English farmers only 15, or 41.67%, are renters. This difference may be partly explained by the fact that most of the English families have been resident in the township longer than the German families and have thus had the opportunity to build up larger family fortunes enabling the achievement of ownership.

Table III shows that the proportion of farmers of Bradford who were born in the township is not nearly as high as in Newton. The percentage born in other parts of the county is about the same, but in Bradford the percentage born in other parts of the United States and

abroad is considerably larger than the corresponding figures for Newton.

The Pre-Ownership Steps in the Agricultural Ladder

The Newton figures reveal that 97 of the 201 farmers or, 48.3%, never worked anywhere for wages. The proportion in Bradford is practically the same, 48.9% (45 of the 92 farmers). However, the subsequent history of these two groups differs. In Newton, seven were tenants for a time and then became owners, and all of the rest went directly to farm ownership from working at home without wages. But in Bradford only 11 of the 45 passed directly to farm ownership

TABLE III. NATIVITY OF 92 FARMERS OF THE TOWNSHIP OF BRADFORD, ROCK COUNTY, WISCONSIN, WITH COMPARABLE PERCENTAGES FOR NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN*.

| Places of Birth | Number | Percentages | |
|--|--------|-------------|---------|
| | | Bradford | Newton† |
| Total..... | 92 | 100.00 | 100.00 |
| In the township..... | 36 | 39.13 | 66.60 |
| In other parts of the county..... | 23 | 25.00 | 23.40 |
| In other parts of the United States..... | 15 | 16.30 | 2.00 |
| Abroad..... | 18 | 19.57 | 8.00 |

*Original Data.

†The Nationality and Nativity figures apply to the 201 farmers on whom data were obtained; there are 267 farmers in the township.

from unpaid labor at home; the remainder either rented farms for a time before becoming owners, or are still in the tenant class. Table IV shows the percentage of the 201 Newton farmers and of the 92 Bradford farmers who engaged in the various wage-earning occupations and the average length of time spent in each. The average in each case is based only on the particular number who engaged in the given occupation.

As far as the numbers engaging in the different occupations are concerned, working on other than the home farm and at urban trades are about equally important in the two localities; working on the home farm with wages is more

TABLE IV. PERCENTAGE OF 201 FARMERS OF NEWTON TOWNSHIP, MANITOWOC COUNTY; AND OF 92 FARMERS OF BRADFORD TOWNSHIP, ROCK COUNTY, WISCONSIN, WHO ENGAGED IN DIFFERENT WAGE-EARNING OCCUPATIONS PRIOR TO FARM OWNERSHIP, AND AVERAGE PERIOD OF TIME SPENT IN EACH*.

| Type of Occupation | Percentage | | Time (Years) | |
|-------------------------------------|------------|----------|--------------|----------|
| | Newton | Bradford | Newton | Bradford |
| On home farm (with wages)..... | 1.99 | 9.78 | 5.88 | 9.78 |
| On other farms..... | 22.38 | 23.91 | 5.43 | 8.32 |
| Rural, non-farming occupations..... | 27.86 | 10.87 | 8.33 | 3.87 |
| Urban occupations..... | 16.41 | 16.30 | 11.81 | 5.40 |

*Original data.

important in Bradford than in Newton; and rural, non-farming occupations are utilized more in Newton than in Bradford. But if we consider the numbers in the several occupations together with the average length of time spent in each of them, we find that working for wages on both the home farm and other farms is more important in Bradford than in Newton, while the opposite is true in the case of the other two types of occupations. Disregarding possible differences in ability, the greater importance of working on the home farm and on other farms in Bradford is attributable, at least in part, to the larger farms of this township. The average size of farms of the 92 Bradford farmers is 165.4 acres, while that of the Newton group is only about 77 acres. The larger farms of Bradford require more help.

The simple (arithmetic) average age of starting to work for wages in Bradford was 22.17 years. This is three years higher than the corresponding average for Newton (19.03 years). All told, the wage-earning period in Bradford is about as long as that of Newton, but the entire pre-ownership stage is longer because of a considerably longer tenancy period. The modal average age for Bradford is 21 years and it is an outstanding mode, inasmuch as there were 18 who started to work for wages at 21 and the next high-

est number for any age was 7. The modal average age for Newton is 16 years, but it is not a very outstanding mode. Hence, probably the age of 21 for Bradford and that of 19.03 for Newton are the logical ages to compare. Four of the 47 who worked for wages in Bradford (8.51%) had an average period of unemployment of 2.08 years. The percentage who were at some time unemployed in Newton was 35.57 and the average length of the period was 4.37 years.

The present amount of tenancy among the two groups has already been indicated. However, 68 of the 92 Bradford farmers have been or are tenants, so that 73.91% have used tenancy as a step up the "agricultural ladder." The corresponding figure for Newton is 8.95% (18 of the 201 farmers, two being tenants at the present time). Since 47 of the 92 Bradford farmers are now renters, 21 of the present 45 owners at one time were tenants. These figures again show the great difference between the two localities in the amount of tenancy.

The average age of becoming a renter was about the same in both townships, 28.56 years in Newton and 28.44 years in Bradford. But considerable difference is found in the length of the time spent in the tenancy stage. In Newton the average tenancy period for the 16 farmers who used this step on the way to ownership is 7.56 years. In Bradford the average period for the 21 in this class is 5.81 years, almost two years shorter than the Newton figure. But if we examine the average period of tenancy of the 47 in Bradford who are still renters, we can easily see that the ultimate average for all those who have been and who are not tenants in Bradford will be higher than that of Newton. The 47 present tenants of Bradford have already been on this rung of the "ladder" an average of 10.45 years.

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The longer pre-ownership stage in Bradford compared to that in Newton is revealed in the average age at which farmers become owners in the two localities. The modal average for Newton is 25 years, that for Bradford is 35 years. The arithmetic averages are 30.06 and 33.26 years respectively.

Only 39.7% of the past and present tenants of Bradford are related to their landlords, 27.94% being sons and 5.88% sons-in-law. In Newton 66.7% are related, $\frac{2}{3}$ of these being sons and the other $\frac{1}{3}$ sons-in-law.

The size of farms of the 47 present tenants of Bradford is 167.42 acres, while that of the 45 owners is 163.24 acres. The size of farms of the owners in Newton is also somewhat smaller than that of the Newton tenants.

The combinations of pre-ownership steps or the "ladders" used by the Bradford farmers in acquiring farm ownership

are shown in Table V. The combinations are arranged in the order of their importance. As one would expect, because of differences in the pre-ownership steps described above, rather pronounced differences exist in the combinations used by the farmers in the two townships. The great difference in the amount of tenancy, which is a distinguishing feature of these two areas, is evidenced by the frequency of occurrence of this step in the respective "ladders" used in these townships.

Tenancy is found in the two most important ladders of Bradford and again in the fourth and fifth most important combinations, but in Newton the sixth combination is the first one in which it occurs. This sixth Newton combination (F-T-O) is the most important one in Bradford for 36.95% of the farmers there used it; whereas only 3.48% of the Newton farmers followed it. Since the percentage of those who worked on other than the home farm is about the same in both townships, difference in the amount of tenancy accounts for the greater importance of the F-H-T-O combination in Bradford, where it ranks second, as compared with ninth place in Newton. The F-H-O combination, on the other hand, ranks sixth in Bradford and third in Newton.

The most common method of attaining ownership in Newton is by the F-O combination. Altogether 44.7% of the farmers there followed it. But this "ladder" occupies third place in Bradford where only 11.95% of that group used it. The second most popular ladder of Newton is F-RL-O with 14.92% following it. But in Bradford, the RL stage does not appear until the fourth combination and even then only 6.52% of the farmers used this step in climbing the "ladder." These are the major differences between the use of the

TABLE V. COMBINATIONS OF PRE-OWNERSHIP STEPS ON THE AGRICULTURAL LADDER USED BY 92 FARMERS IN BRADFORD TOWNSHIP, ROCK COUNTY, AS COMPARED WITH LADDERS USED BY 201 FARMERS IN NEWTON TOWNSHIP, MANITOWOC COUNTY, WISCONSIN*.

| Combinations | Number of Farmers | | | | | |
|-----------------------|-------------------|--------|------------------|--------|-----------------|--------|
| | Total | | Rearred on Farms | | Rearred in City | |
| | Bradford | Newton | Bradford | Newton | Bradford | Newton |
| All Combinations | (92) | (201) | (89) | (192) | (3) | (9) |
| (1) F-T-O..... | 34 | 7 | 34 | 7 | 0 | 0 |
| (2) F-H-T-O..... | 12 | 3 | 12 | 3 | 0 | 0 |
| (3) F-O..... | 11 | 90 | 11 | 90 | 0 | 0 |
| (4) F-RL-T-O..... | 6 | 1 | 6 | 1 | 0 | 0 |
| (5) F-UL-T-O..... | 6 | 3 | 4 | 2 | 2 | 1 |
| (6) F-H-O..... | 5 | 21 | 5 | 20 | 0 | 1 |
| (7) F-W-T-O..... | 4 | 0 | 4 | 0 | 0 | 0 |
| (8) F-W-O..... | 2 | 2 | 2 | 2 | 0 | 0 |
| (9) F-UL-O..... | 2 | 13 | 1 | 6 | 1 | 7 |
| (10) F-H-RL-T-O..... | 2 | 0 | 2 | 0 | 0 | 0 |
| (11) F-W-UL-T-O..... | 2 | 0 | 2 | 0 | 0 | 0 |
| (12) F-RL-O..... | 1 | 30 | 1 | 30 | 0 | 0 |
| (13) F-H-RL-O..... | 1 | 12 | 1 | 12 | 0 | 0 |
| (14) F-W-UL-C..... | 1 | 0 | 1 | 0 | 0 | 0 |
| (15) F-H-UL-O..... | 1 | 6 | 1 | 6 | 0 | 0 |
| (16) F-H-UL-T-O..... | 1 | 0 | 1 | 0 | 0 | 0 |
| (17) F-UL-RL-T-O..... | 1 | 3 | 1 | 3 | 0 | 0 |
| F-RL-UL-O..... | 0 | 5 | 0 | 5 | 0 | 0 |
| F-H-UL-RL-O..... | 0 | 2 | 0 | 2 | 0 | 0 |
| F-W-RL-O..... | 0 | 2 | 0 | 2 | 0 | 0 |
| F-H-UL-RL-T-O..... | 0 | 1 | 0 | 1 | 0 | 0 |

*Original data.

Key: F—at home without wages; H—hired man on other than the home farm; RL—rural, non-agricultural labor; UL—urban labor; W—at home with wages; T—tenant; O—owner.

"ladder" in the two townships. As the table shows, the proportion born in the city was smaller in Bradford than in Newton, the figure for the latter locality being 5.97%.

However, Table V includes the 47 present tenants, as well as the 45 owners, and we are here assuming that these tenants will at some time become owners. This assumption is reasonable for at least most of the tenants, and there is value in studying the effect of existing conditions upon all farmers, both owners and tenants, as a group. But to be strictly accurate, and also to study separately the pre-ownership stages of tenants and of owners, it is necessary to divide Table V so as to show the combinations used by tenants only as far as they have actually gone in their climb up the "ladder." Table VI shows the rungs of the "ladder" used by the owners and Table VII those followed by the tenants.

TABLE VI. COMBINATIONS OF PRE-OWNERSHIP STEPS ON THE AGRICULTURAL LADDER USED BY 45 FARM OWNERS IN BRADFORD TOWNSHIP, ROCK COUNTY, WISCONSIN.

| Combinations | Number of Farmers | | |
|---------------------------|-------------------|---------------------|--------------------|
| | Total | Rearred on Farms | Rearred in City |
| All Combinations | 45 | 43 | 2 |
| (1) F-T-O | 11 | 11 | 0 |
| (2) F-O | 11 | 11 | 0 |
| (3) F-H-T-O | 6 | 6 | 0 |
| (4) F-H-O | 5 | 5 | 0 |
| (5) F-W-O | 2 | 2 | 0 |
| (6) F-UL-O | 2 | 1 | 1 |
| (7) F-W-T-O | 2 | 2 | 0 |
| (8) F-RL-O | 1 | 1 | 0 |
| (9) F-H-RL-O | 1 | 1 | 0 |
| (10) F-H-RL-T-O | 1 | 1 | 0 |
| (11) F-W-UL-O | 1 | 1 | 0 |
| (12) F-H-UL-O | 1 | 1 | 0 |
| (13) F-UL-T-O | 1 | 0 | 1 |

Key: F—at home without wages; H—hired man on other than the home farm; RL—rural, non-agricultural labor; UL—urban labor; W—at home with wages; T—tenant; O—owner.

To judge accurately the extent to which tenancy is used, it must be remembered that this stage occurs in every combination in Table VII.

The most important pre-ownership "ladder" (F-T-O) in Table V is also by

far the most important one used by the present tenants. It shares the place of first rank with the F-O ladder in Table VI. As in Table V, the combination composed of the F, H, and T steps is the next most important one in Tables VI and VII. The F-H-O "ladder" follows in the table for the owners, thus occupying the same position here in relation to the F-H-T-O combination that it did in Table V.

TABLE VII. COMBINATIONS OF PRE-OWNERSHIP STEPS ON THE AGRICULTURAL LADDER USED BY 47 TENANTS IN BRADFORD TOWNSHIP, ROCK COUNTY, WISCONSIN.

| | Number of Farmers | | |
|-------------------------|-------------------|---------------------|--------------------|
| | Total | Rearred on Farms | Rearred in City |
| All Combinations | 47 | 46 | 1 |
| (1) F-T | 23 | 23 | 0 |
| (2) F-H-T | 6 | 6 | 0 |
| (3) F-RL-T | 6 | 6 | 0 |
| (4) F-UL-T | 5 | 4 | 1 |
| (5) F-W-T | 2 | 2 | 0 |
| (6) F-W-UL-T | 2 | 2 | 0 |
| (7) F-H-RL-T | 1 | 1 | 0 |
| (8) F-H-T-O | 1 | 1 | 0 |
| (9) F-UL-RL-T | 1 | 1 | 0 |

Key: F—at home without wages; H—hired man on other than the home farm; RL—rural, non-agricultural labor; UL—urban labor; W—at home with wages; T—tenant; O—owner.

The comparison thus far shows a general similarity between the "ladders" used by the owners and those in use by the tenants. A slight difference is revealed, however, in a comparison of the next two "ladders" in Tables VI and VII. Combinations 4 and 5 used by the owners have "H" and "W" respectively as the only step between "F" and "O", while combinations 3 and 4 for the tenants, besides containing the tenancy step, have "RL" and "UL" in place of "H" and "W". This indicates a greater instability in these 11 tenants as compared with the owners, a greater inclination in them to engage in non-agricultural occupations, while the seven owners involved were content to remain in farm-labor, wage-earning occupations.

The Post-Ownership Stages

In taking up the post-ownership steps of the 45 Bradford owners, the degree of family relationship between them and the former owners should first be observed. Altogether 19 (41.4%) were thus related. Fourteen (30.4%) were sons, two were daughters, one was a son-in-law, and the other two were distant relatives. This leaves 27 (58.6%) unrelated.⁵ The degree of relationship in Newton was much higher where 68.8% of the owners were related to the immediately preceding owners. One hundred seven of the 199 owners were sons

⁵ The discrepancy in the total (46 instead of 45) is explained by the inclusion of one farmer who had been an owner but is now a tenant.

and 17 were sons-in-law; the other types of relationship were not numerically important. This difference between the two townships tends to show a greater stability in the Newton population as compared with Bradford. This has already been previously indicated by the greater importance of this F-O ladder in Newton and the larger proportion of the Newton group born in that township, as compared with the percentage of the Bradford farmers who are native to that township. The climbing of the post-ownership steps by the Bradford farmers, through liquidating their mortgage debts is shown in Table VIII by groups who have been farming varying lengths of time. The rate of climb by

TABLE VIII. MORTGAGE DEBT PER ACRE FOR 38 FARMERS IN BRADFORD TOWNSHIP, ROCK COUNTY, WISCONSIN, AT SUCCESSIVE FIVE-YEAR INTERVALS, BY GROUPS WHO HAVE BEEN FARM OWNERS VARYING LENGTHS OF TIME*.

| Group | Number in Given Group | Debt at Begin- ning | In 5 Years | In 10 Years | In 15 Years | In 20 Years | In 25 Years | In 30 Years | In 35 Years |
|-----------------------------------|--------------------------------|---------------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Farm Owners Since 1920-1924 | 5 | \$152.66 | \$135.09 | | | | | | |
| Farm Owners Since 1915-1919 | 8 | 60.10 | 76.56 | \$ 73.22 | | | | | |
| Farm Owners Since 1910-1914 | 9 | 54.04 | 65.68 | 43.28 | \$ 31.11 | | | | |
| Farm Owners Since 1905-1909 | 6 | 84.20 | 64.04 | 56.02 | 36.97 | \$ 42.20 | | | |
| Farm Owners Since 1900-1904 | 5 | 48.13 | 34.07 | 14.76 | 23.59 | 6.56 | \$ 10.40 | | |
| Farm Owners Since 1895-1899 | 3 | 18.10 | 26.79 | 22.63 | 18.48 | 43.50 | 26.66 | \$ 29.36 | |
| Farm Owners Since 1890-1894 | 2 | 7.66 | 7.11 | 23.82 | 7.47 | 7.21 | 6.34 | 6.34 | \$ 6.34 |
| Average | | \$ 65.58 | \$ 67.60 | \$ 48.96 | \$ 26.95 | \$ 28.66 | \$ 15.78 | \$ 21.02 | \$ 6.34 |

*Based on data obtained in the office of the Register of Deeds, Rock County, Janesville, Wisconsin.

the entire group is indicated in the average at the bottom of the table and graphically on Chart I. The mortgage debt represented here includes not only the debt on the first land bought but also that on all land bought subsequently. Seven of the 45 owners had to be omitted from this analysis because some of them had not been farming for five years, others owned land lying outside of Bradford township on which the mortgage information was not obtained.

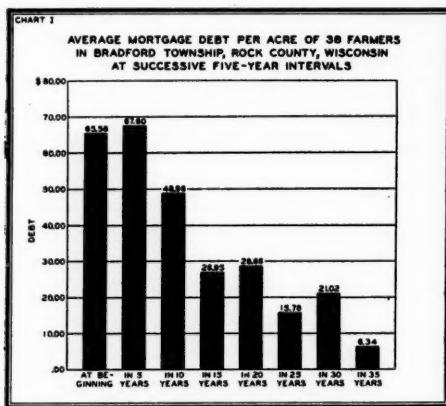


Table VIII and Chart I show a very striking difference between the two townships in the amount of debt per acre. The Bradford group started with a debt of \$65.58 per acre compared with \$50.66 for Newton and continued to exceed the Newton debt during the first 20 years of ownership. One reason for this may be the higher land values of Bradford. Since 1900 and up to 1925 the land values of Rock County have been from \$8.52 to \$14.70 higher per acre than those of Manitowoc County.⁶ Since 1925, however, the situation has been

reversed, but this did not affect any of the farmers in either group because they all became owners and acquired their mortgage debt prior to 1925.

Another reason for this higher debt is the larger farms of Bradford. The higher land values and the larger farms of this locality mean that a farm there represents a much larger investment than in Newton, and this naturally causes the farmers of the former township to buy farms on a closer margin than the owners of Newton do. This is substantiated by the census figures on the ratio of the amount of mortgage debt to total farm value for Rock and Manitowoc Counties. In 1925 the owner-operators of Manitowoc County, who reported mortgage debt, were mortgaged to the extent of 49.9% of the total value of their farms, while those of Rock County showed a ratio of debt to value of 56.6%.⁷

But the Bradford farmers seem to have paid off their mortgage debt in a shorter period of time than have those of Newton. Starting with 30% more debt the former nevertheless had less debt at the end of 35 years than the latter. This difference is to some extent accounted for by the better market which the Bradford group has for its milk. The Chicago milk market yields a considerably higher price than is paid by the cheese factories of Newton. But this would hardly explain all of the difference in the rate of payment of the mortgage debt that we see between the two townships. Taking into consideration the degree of family relationship,⁸ the cost of farm credit,⁹ and the lack of evidence that farmers in the two regions differ markedly in ability,¹⁰ it seems safe to

⁶ Thirteenth Census of the United States (1910), Vol. VII, pp. 916-919; and United States Census of Agriculture (1925), "The Northern States," pp. 676, 678 and 679.

⁷ United States Census of Agriculture (1925), *op. cit.*, *supra*, n. 5.

⁸ *Supra*, p. 71.

⁹ *Infra*, p. 76.

¹⁰ This assumption of equal ability among the farmers
(Footnote 10 continued on page 75)

conclude that the shorter encumbrance experience of the Bradford farmers is evidence of the superiority of the Corn Belt for agricultural purposes, because of the greater diversification through large production of hogs and corn.

In 1929, 68.4% of the 38 Bradford farm-owners still had mortgages on their farms, while only 50.98% of the Newton owners had mortgage debt in 1927. This shows in other terms the relative amount of farm mortgage debt in the two areas. Table VIII shows that in Bradford, as in Newton, the range in the amount of debt at the beginning of ownership is wide. In Bradford the range is from \$7.66 to \$152.66 over a 35-year period compared with a range from \$20.12 to \$95.61 in Newton over a 40-

year period. With one exception in both townships the debt at the beginning grows constantly larger from each group to the next younger one.

We now come to an examination of a factor which is the main cause of all the other differences of importance and at the same time is a good measure of the rate of climb on the post-ownership steps of the "agricultural ladder"; viz., the size of farms. Table IX gives the average size of farms at five-year intervals of the Bradford farmers for the groups indicated in Table VIII. A considerable increase in size is evident.

(Footnote 10 continued from page 74)

in the two regions studied should be borne in mind throughout the study. The assumption must be made for lack of convincing evidence to the contrary.

TABLE IX. SIZE OF FARMS OF 38 FARMERS IN BRADFORD TOWNSHIP, ROCK COUNTY, WISCONSIN, AT SUCCESSIVE FIVE-YEAR INTERVALS, BY GROUPS WHO HAVE BEEN FARM OWNERS VARYING LENGTHS OF TIME*.

| Group | Number in Group | At Begin- ning | In 5 Years | In 10 Years | In 15 Years | In 20 Years | In 25 Years | In 30 Years | In 35 Years |
|-----------------------------------|-----------------------|----------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Farm Owners Since 1920-1924 | 5 | 110.66 | 134.66 | | | | | | |
| Farm Owners Since 1915-1919 | 8 | 210.42 | 221.29 | 221.29 | | | | | |
| Farm Owners Since 1910-1914 | 9 | 119.34 | 119.34 | 123.20 | 123.32 | | | | |
| Farm Owners Since 1905-1909 | 6 | 89.66 | 95.50 | 95.50 | 122.16 | 154.41 | | | |
| Farm Owners Since 1900-1904 | 5 | 119.65 | 123.25 | 123.25 | 143.25 | 143.25 | 143.25 | | |
| Farm Owners Since 1895-1899 | 3 | 77.33 | 160.50 | 160.50 | 160.50 | 213.75 | 213.75 | 194.08 | |
| Farm Owners Since 1890-1894 | 2 | 130.50 | 140.50 | 138.50 | 140.50 | 145.50 | 165.50 | 165.50 | 165.50 |
| Average | | 130.00 | 143.93 | 146.27 | 132.82 | 160.93 | 168.85 | 182.65 | 165.50 |

*Based on data obtained in the office of the Register of Deeds, Rock County, Janesville, Wisconsin.

The great difference between the size of farms in Bradford and in Newton is apparent; the average size for the latter township ranges from 70.43 acres at the beginning of ownership to 90.37 acres at the end of 45 years. Further evidence on size of farms is found in the number of farmers resident in the two townships. Only 133 farmers are found in Bradford and 267 in Newton, although the latter is 873.1 acres smaller than the former. This very considerable difference in size of farms may thus be advanced as an important factor contributing to the other major differences heretofore noted—more employment on farms for wages, more tenancy and consequently a longer pre-ownership period together with the corresponding variations in the use of pre-ownership steps on the "ladder", and a greater mortgage debt at the time of becoming a farm owner, in Bradford as compared with Newton. However, the higher land values obtaining in Bradford should also be considered as an influence operating in the same direction.

In addition some other factors must be mentioned. An important one is the difference between the rate of farm-mortgage interest in the two areas. Newton lies in the area of the lowest farm-mortgage interest rate in the United States, the rate in 1920 having been from 4.6 to 5.0%. Bradford lies in the next lowest area, which has a range of 5.1 to 5.3%.¹¹ The source of the funds for these loans has probably been to the greatest extent responsible for this low rate in Newton. From 1920 to 1925, 67.4% of the mortgage debt of the township was lent to the debtors by residents of the same community,¹² and the amount was even larger in previous periods. This is the result of the greater faith of the lenders

in mortgages on neighboring farms as an investment and also of the higher degree of relationship between landlords and tenants, owners and former owners in Newton, which has had other effects besides this. Tenancy itself, both in amount and duration, is lessened by this closer relationship and farmers also become owners at a lower age in Newton as a result of this same cause. This obviously shortens the pre-ownership stage there. But probably the most significant influence is exerted upon the amount of mortgage debt assumed at the time of becoming an owner. This, as we have seen, is considerably lower in Newton as compared with Bradford.

Another factor of a personal nature is the strong aversion toward tenancy found in Newton. This may be attributable merely to the fact that they are not used to it, but it may also be a hang-over from the land hunger of the early pioneers, who were foreign born, for the percentage of tenancy among the foreign born in this country is less than among the native born. Yet the high percentage of tenancy among the farmers of German descent in Bradford seems to indicate that the transition to the native point of view takes place in a relatively short time. A third cause of the higher amount of tenancy in Bradford compared with Newton is the type of farming. As noted previously, Bradford is not so strictly a dairy region as Newton and quantities of hogs and corn are also raised. To this extent the farming of Bradford is more of a year-to-year type, which is better adapted to tenancy than is dairying exclusively. The latter requires several years to build up a dairy herd.

¹¹ David Rozman, "Land Credit in the Town of Newton, Manitowoc County, Wisconsin, 1848-1926,"

¹² *Ibid*, p. 374.

Conclusion

In conclusion we can say that it is harder and takes longer to acquire farm ownership in Bradford than in Newton, and hence the pre-ownership state is longer in the former township than in the latter. But still the opportunity for the accumulation of wealth seems greater in Bradford than in Newton, as shown by the shorter encumbered-ownership stage in Bradford despite higher land values. We cannot to any extent offer suggestions to the farmers of either locality as to how they can improve the "agricultural ladders" they are using, except that perhaps farm leases might be adjusted so as to be more favorable to the tenant and make this step of greater use as a means of acquiring ownership, but this should not be carried so far as to create a permanent tenant class. Additional improvement in the economic and social condition of the farmer cannot be achieved except through a change in more fundamental factors.

But this study does give a clearer understanding of the nature of the "agricultural ladders" used and how

they may be explained economically. This is especially true of tenancy, which, in the writer's opinion, does not deserve all of the criticism it has received. It has, for one thing, been accused of being a type of tenure which gradually destroys soil fertility. But, although no evidence on this particular point is presented in this survey, this result has not been generally true, at least it need not be, as the experience of England admirably shows. Furthermore, tenancy is a step on the "agricultural ladder," and probably the most efficient one prior to ownership that can be found. The undesirability of the permanent tenant may be admitted, but this untoward result seems attributable in most cases more to lack of ability in the farmer than to the system of tenancy as such.

This opinion does not involve a denial of the social disadvantages of tenancy, such as the instability of the average American tenant, i. e., his tendency to move, his lack of interest in local institutions, churches, schools, etc. However, most of these defects of American tenancy can be taken care of in the leases.

Municipal Ownership and the Changing Technology of the Electric Industry: Conclusion*

By PAUL JEROME RAVER

THE municipal ownership movement in the West North Central geographic division has been characterized by a fairly constant rate of increase in prime mover capacity from 1903 to 1916, by a slight reduction in this rate of increase between 1916 and 1926 and by a return to the former rate of growth from 1926 to April 1, 1930.¹ Until 1915 this rate of increase in horsepower was matched by a similar rate of growth in numbers of generating plants. After 1915, however, these two measures of public ownership part company. From 1916 to 1926 the numbers of plants in existence declined, though only a slight reduction in the rate of increase in horsepower took place. Since 1926 this decline in numbers has been retarded, whereas the growth in horsepower capacity has been accelerated.

This parting of the ways between horsepower capacity and numbers of municipal plants reflects the relative strength of two—newer versus older—methods of organizing production to meet the popular demand for electricity; large-scale, interconnected systems and smaller-scale, isolated, self-sufficient plants. The use or absence of transmission lines is the chief technological dif-

ference between the two methods. In a sense, therefore, we have had a contest between two forms of modernization from the technological standpoint: (1) economizing with the use of transmission lines, (2) economizing without the use of transmission lines. On the one hand we have mass production concentrated in large generating stations interconnected into systems by transmission lines; on the other hand we find isolated, self-sufficient generating stations growing with increasing demands but serving a market limited to corporate boundaries largely without transmission line connections.

Both the privately owned and municipally owned portions of the industry began largely as self-sufficient systems. Transmission lines, aiding the concentration of loads in large, modern generating stations, abetted the merger of private companies and the scrapping or modernization of generating plants. In the municipally owned section of the industry transmission line development caused losses of self-sufficient generating plants (1) by change to private ownership and (2) by change to purchasing all or part of output.

These results are direct and readily observed;² but there are indirect results

* Tables and charts are numbered consecutively with preceding articles.

¹ See Chart v, second article, 6 *Journal of Land & Public Utility Economics* 391 (November, 1930).

² In the 13 years prior to 1917, nearly 50,000 hp. was added by origination of new municipal plants or an average of about 3,800 hp. per year. In the next nine years (1917-1925) such additions were reduced to about

2,900 hp. per year and in the last 4½ years (1926-April 1, 1930) less than 1,000 hp. per year were added by such originations. Here, of course, transmission line development is the technological factor which has reduced the additions to horsepower. In fact it has probably prevented the growth in horsepower about as much

(Footnote 2 continued on page 79)

not easily seen. Accompanying, if not stimulated by, the spread of transmission line interconnections are many improvements in prime movers. Here are indirect features of the mass production movement that are within the reach of isolated generating plants outside the immediate circle of transmission line influences. Have these self-sufficient municipal plants, by increasing their size and mechanical efficiency, held their own against the absorbing tendencies of interconnected systems? From 1915 until 1926 direct transmission line influence was sufficiently active. However, these indirect modernizing forces were also active. This is evident by the fact that total horsepower capacity continued to grow but at a slightly decreased rate from the previous period, 1903-1915. After 1926, there is evidence that the tide of battle changed. Self-sufficient municipal plants registered an increase in the rate of expansion in horsepower capacity, whereas the influence of interconnection had evidently waned, as evidenced by a slowing up in the rate of decline in numbers of municipal generating plants.

Is it possible that this recent reversal of trends implies that, technologically, municipal ownership is being established on a more effective basis of competition? One hesitates to make any such prediction, yet the evidence collected seems to

point in that direction. All of the equities of the controversy over public versus private ownership of these utilities cannot be treated in terms of numbers of plants and horsepower of prime movers. The business has not yet entered completely into the robot stage of mechanical development.³ And even if it had, one cannot completely measure important though intangible social factors, such as community development, by statistics of numbers and types of prime movers. A recognition of these limitations to a statistical treatment of social phenomena is desirable lest we become so involved in factual detail that we fail to see the woods for the trees.

There is much to be said, however, for a purely impersonal statistical analysis of these trends. To view and to weigh the effect of technological developments *as such* removes the discussion from the field of political controversy but still recognizes that technological factors may well underlie and influence the controversy.

Against the background which has been outlined above as well as in previous articles, our interest is centered in an analysis of the development of those economies of isolated plant operation which have resulted in horsepower expansion and which have slowed up the decline in numbers of municipally owned generating plants.⁴ In this, the mechanical

(Footnote 2 continued from page 78)
by the prevention of originations of new plants as it has by changing the ownership and technical character of plants already established (Table 1x of 2nd article). Until 1916, public ownership, as measured by plant capacity was gaining more from new plants originating than it was losing by old plants changing to purchasing and to private ownership. After 1916, and more especially after 1922, the situation was reversed. This is a reflection of a number of factors, one of the most important of which is that the establishment of municipally owned generating plants prior to 1916 was motivated by the necessity for securing a service which often could not be obtained in any other way. After 1916, the transmission line development began to provide another way and, as it did so, one of the prevailing

motives for the origination of publicly owned plants was removed. In so far as horsepower capacity is a measure of growth or decline in municipal ownership, it is probable that thus far transmission line development has been a factor just as important in preventing originations as in reducing horsepower capacity by changing the technical character of generating plants or causing their absorption by interconnected systems.

³ However, it is worth noting, that its trend in this direction may be a factor in fortifying municipal ownership and operation against political tampering and managerial inefficiency.

⁴ The reader must recognize once more that the analysis is based only on the seven states of the West North Central geographic division.

efficiency, and hence the competitive position, of isolated generating stations, have been materially affected by the type of prime mover employed. The first article of this series was concerned with an analysis of the changes in numbers of municipally owned generating plants by type of prime mover. The second article analyzed the gains and losses in horsepower capacity, but without regard to the type of prime mover installed in the plant. The task in the present article is to relate these total gains and losses in horsepower capacity to the type of prime mover which has been in use when they occurred.

Total Gains and Losses in Horsepower Capacity By Types of Prime Mover

Annual growth in horsepower capacity of municipal generating plants was pictured in the previous article as the result of adding horsepower by new plants, or by expanding the capacity of existing plants, and subtracting horsepower lost by change to private ownership or by change to purchasing all or part of output. When we attempt to picture this same movement by prime mover types one additional factor must be considered, namely, the gains accruing to one type of prime mover as a result of losses suffered by another type in the same plant. For example, the scrapping of a 500 hp. steam engine and the installation of a 500 hp. steam turbine to take its place do not change the plant capacity⁵ and therefore are not reflected in the total movement of gains and losses, but they do affect the gains and losses of prime mover types by reducing

the total capacity of steam engine plants and increasing that of steam turbine plants.⁶ This internal readjustment of prime mover types complicates our analysis but it is important because it offers a rough measure of the degree to which municipal plants have scrapped older types of equipment in favor of modern, although we cannot be sure that all such changes were for the better.

The composite plants registered the largest gross addition to capacity over the 26-year period with 33.3% of the total gains (Table XI). Following in order we find steam turbine, steam engine, oil engine, and gas engine plants, the latter accounting for only 2.5% of the total gains. Steam engine plants lead the array of losses by prime mover types, accounting for 45.5% of the total, followed in order of importance by composite, oil engine, gas engine, and steam turbine plants, the latter accounting for only 1.7% of the total losses.

The absorbing tendencies of interconnected systems registered their effect on horsepower capacity largely in terms of losses by change to private ownership and by change to purchasing all or part of output. Yet, we find (Table XI) only 18.0% of the total losses in horsepower capacity were a result of a change from municipal to private ownership and only 12.6% were a result of a change from generating to purchasing output. In both instances, however, steam engine plants lead other prime mover types in total capacity lost. There were no instances of steam turbine plants completely relinquishing their self-sufficient

⁵ Except in so far as differences in mechanical efficiency may result in a greater capacity in the one case than in the other.

⁶ Where a 500 hp. steam turbine is added to the plant equipment, then 500 hp. is taken from the "steam engine only" classification and 1,000 hp. added to the

"composite plant" classification. Usually this is a transitional stage of development in which the steam engine is eventually replaced by additional steam-turbine capacity. When the transition is completed, the plant moves from the composite class to the steam turbine class. A brief analysis of the numbers of plants making this internal shift from one type of prime mover to another was presented in the first article (Table III).

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TABLE XI. DISTRIBUTION OF GAINS AND LOSSES IN HORSEPOWER CAPACITY OF MUNICIPAL GENERATING PLANTS BY TYPE OF PRIME MOVER, PERIOD 1904 TO APRIL 1, 1930, WEST NORTH CENTRAL GEOGRAPHIC DIVISION.

| | Total Horsepower | Steam Engine Plants | Steam Turbine Plants | Oil Engine Plants | Gas Engine Plants | Composite Plants | Miscellaneous Types* |
|--|------------------|---------------------|----------------------|-------------------|-------------------|------------------|----------------------|
| Gains—Total Horsepower..... | 591,942 | 121,032 | 138,980 | 115,395 | 14,534 | 197,170 | 4,831 |
| Added by Plants Originating.... | 80,917 | 33,900 | 5,505 | 25,016 | 9,149 | 5,076 | 2,271 |
| Added by Expansion of Same Type of Prime Mover..... | 294,944 | 78,185 | 80,955 | 48,613 | 3,760 | 81,747 | 1,684 |
| Added by Change from Another Type of Prime Mover..... | 216,081 | 8,947 | 52,520 | 41,766 | 1,625 | 110,347 | 876 |
| Losses—Total Horsepower..... | 232,775 | 105,896 | 3,865 | 20,018 | 13,918 | 86,036 | 3,042 |
| Lost by Change to Purchasing.. | 29,420 | 17,544 | ..... | 6,349 | 3,587 | 868 | 1,072 |
| Lost by Change to Private Ownership..... | 41,949 | 17,114 | 475 | 11,764 | 2,937 | 8,933 | 726 |
| Lost by Change to Another Type of Prime Mover..... | 146,864 | 65,076 | 70 | 1,465 | 7,174 | 71,835 | 1,244 |
| Lost by Internal Reduction..... | 14,542 | 6,162 | 3,320 | 440 | 220 | 4,400 | ..... |
| Balance—Net Gain for Period..... | 359,167 | 15,136 | 135,115 | 95,377 | 616 | 111,134 | 1,789 |
| Plus Horsepower in Existence at Beginning of Period..... | 35,102 | 33,781 | ..... | ..... | 84 | 212 | 1,025 |
| Total Horsepower in Existence April 1st, 1930..... | 394,269 | 48,917 | 135,115 | 95,377 | 700 | 111,134 | 2,814 |

Percentage Distribution by Classes of Gains and Losses

| | | | | | | | |
|--|--------|-------|-------|-------|------|-------|-------|
| Gains—Total..... | 100.0% | 20.4% | 23.5% | 19.5% | 2.5% | 33.3% | 0.8% |
| Added by Plants Originating.... | 100.0 | 42.0 | 6.8 | 30.9 | 11.3 | 6.2 | 2.8 |
| Added by Expansion of Same Type of Prime Mover..... | 100.0 | 26.5 | 27.4 | 16.5 | 1.3 | 27.7 | 0.6 |
| Added by Changes from Another Type of Prime Mover..... | 100.0 | 4.1 | 24.3 | 19.3 | 0.7 | 51.2 | 0.4 |
| Losses—Total..... | 100.0 | 45.5 | 1.7 | 8.6 | 6.0 | 36.9 | 1.3 |
| Lost by Change to Purchasing.. | 100.0 | 59.7 | ..... | 21.5 | 12.2 | 3.0 | 3.6 |
| Lost by Change to Private Ownership..... | 100.0 | 40.8 | 1.1 | 28.1 | 7.0 | 21.3 | 1.7 |
| Lost by Change to Another Type of Prime Mover..... | 100.0 | 44.4 | (†) | 1.0 | 4.9 | 48.9 | 0.8 |
| Lost by Internal Reduction..... | 100.0 | 42.4 | 22.8 | 3.0 | 1.5 | 30.3 | ..... |
| Balance—Total in Existence April 1st, 1930..... | 100.0 | 12.4 | 34.3 | 24.2 | (†) | 28.2 | 0.7 |

Percentage Distribution of Prime Mover Types According to Classification of Gains and Losses

| | | | | | | | |
|--|--------|--------|--------|--------|--------|--------|--------|
| Gains—Total..... | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Added by Plants Originating.... | 13.7 | 28.0 | 4.0 | 21.7 | 62.9 | 2.6 | 47.0 |
| Added by Expansion of Same Type of Prime Mover..... | 49.8 | 64.6 | 58.2 | 42.1 | 25.9 | 41.4 | 34.9 |
| Added by Changes from Another Type of Prime Mover..... | 36.5 | 7.4 | 37.8 | 36.2 | 11.2 | 56.0 | 18.1 |
| Losses—Total..... | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Lost by Change to Purchasing.. | 12.6 | 16.6 | 0.0 | 31.7 | 25.8 | 1.0 | 35.2 |
| Lost by Change to Private Ownership..... | 18.0 | 16.2 | 12.3 | 58.8 | 21.1 | 10.4 | 23.9 |
| Lost by Change to Another Type of Prime Mover..... | 63.1 | 61.4 | 1.8 | 7.3 | 51.5 | 83.5 | 40.9 |
| Lost by Internal Reduction..... | 6.3 | 5.8 | 85.9 | 2.2 | 1.6 | 5.1 | ..... |

*Includes water wheels and other "internal combustion engines".

†Less than ½ of 1%.

status of generating all their output.⁷

Gains resulting from the origination of new plants accounted for 80,917 hp. representing only 13.7% of all gains (Table XI). Since almost $\frac{2}{3}$ of this gain was accumulated prior to 1916, probably transmission line development has been as important a factor in preventing originations since that date as it has been in removing plants from their status of isolation.⁸ Steam engine plants accounted for 42% of the total gains followed by oil engine plants (30.9%) and gas engine plants (11.3%).

Gains and Losses by Internal Adjustments

As noted in the previous article,⁹ increased plant capacity in this territory has resulted largely from internal expansion in existing generating stations rather than from additions to total capacity by the establishment of new plants. The addition of horsepower in prime movers of the same type already installed, and the shift from one type of prime mover to another are adjustments in plant capacity accounting for this internal expansion and offering an interesting measure of the preference for a particular type of prime mover.

It will be noted in Table XI that 294,944 hp. (49.8% of the total gains) were added in prime movers of the same type as those already installed. Of this form of internal expansion, 27.4% was steam turbine capacity added to ex-

isting steam turbine plants. Similarly for the other types, there was added to existing prime movers of the same type 26.5% in steam engines, 16.5% in oil engines, 1.3% in gas engines, and 27.7% in composite plants.

Gains and losses by shift from one type of prime mover to another cancel each other except where the replacement is made with a prime mover of larger size. Since the total loss in this "trading" was 146,864 hp. (Table XI), whereas the total gain was 216,081 hp., the difference of 69,217 hp. is again a form of internal expansion¹⁰—a favorable "balance of trade." Oil engine plants and steam turbine plants have had a favorable trade balance with 19.3% and 24.3% respectively of the total "incoming" horsepower and 1% or less of the total "outgoing" horsepower. Composite plants have gained only slightly in the trade but have handled about $\frac{1}{2}$ of the total business. These plants are generally in a transitional stage awaiting the scrapping of one type of prime mover and are therefore a natural market place for this trading activity. Steam engine plants have handled about $\frac{1}{4}$ of the total exchange but have been on the debit side of the transaction securing only 4.1% of the incoming and contributing 44.4% of the outgoing horsepower. Gas engines have given up more than they have received but have not been involved to any considerable extent in the total amount handled.

modernization here has been a result of transmission line development.

⁷ See note 2, *supra*.

⁸ 6 *Journal of Land & Public Utility Economics* 389 (1930).

⁹ The gross internal expansion is therefore 69,217 hp. plus 294,944 hp. or 364,161 hp. The latter figure does not check exactly with the corresponding total (365,694 hp.) published in Table VII of the previous article. Some additional information has been received which does not affect the general trends previously given. These corrections will be made in all tables when these articles are combined in monograph form.

⁷ Of the 690 generating establishments which have existed in this territory during the 26-year period, 113 have at some time or other reduced their generating capacity without changing the type of prime mover in the process. This reduction which amounts to 14,542 hp. over the period is only a part of the "Reduction in Generating Capacity of Existing Plants" (24,628 hp.) given in Table VII of second article. While the available information does not give a clue to the cause of this loss, probably much of it has been caused by a change from generating all to generating part and purchasing part of output. The fact that most of it has taken place since 1916 is supporting evidence that

In the first article, the hypothesis was advanced that municipalities were responding, in part at least, to an *economic* appeal made by newer developments in technology. The large volume of horsepower (362,945) involved in these trading transactions and the trends of these internal readjustments toward the use of more modern prime mover types offer confirmation of the accuracy of the hypothesis. Here is evidence of internal modernization or economizing without the use of transmission lines. It is noteworthy that the trading activity has become greater since 1924 (Chart VII), augmenting the internal forces in the technological battle.

Gains and Losses in Horsepower Capacity of Each Prime Mover Type

The percentages of Table XI integrate the whole period from 1904 to 1930. Such a survey ignores the intervening time element. In Chart VII an effort is made to surmount this difficulty. Here, the positive and negative effects of technological forces on municipal generating stations are cumulated year by year in terms of horsepower capacity for each type of prime mover. At April 1, we take a cross-section view of the results of the movement on each type of plant, or turn at right angles, so to speak, and survey the summation of gains and losses, layer by layer. This "cross-section view" is given by the percentage distribution of prime mover types according to classification of gains and losses (Table XI).

Oil Engine Plants

The first thing of interest in the oil engine section of Chart VII is the fact that cumulated gains for these plants are about $5\frac{3}{4}$ times the cumulated losses. The former total 115,395 hp. and the

latter 20,018 hp. (Table XI), leaving a net balance in favor of oil engine plants of 95,377 hp. at April 1, 1930.

Of the total gains, 36.2% accrued as a result of a preference for oil engines over some other type. In contrast, only 7.3% of the losses accrued as a result of a preference for some other type than oil engines. These percentages provide us with a clue to the value to oil engine plants of the "favorable balance of trade" previously noted.¹¹ That is, oil engine plants received 19.3% of the total "incoming" horsepower provided by all shifts in prime mover types and this amount represents 36.2% of the total of all gains in horsepower of oil engine plants. We now have definite support for the hypothesis that in this shift to more efficient types of prime movers, the "favorable" trade balance (of oil engine plants) has strengthened the competitive position of municipal ownership.

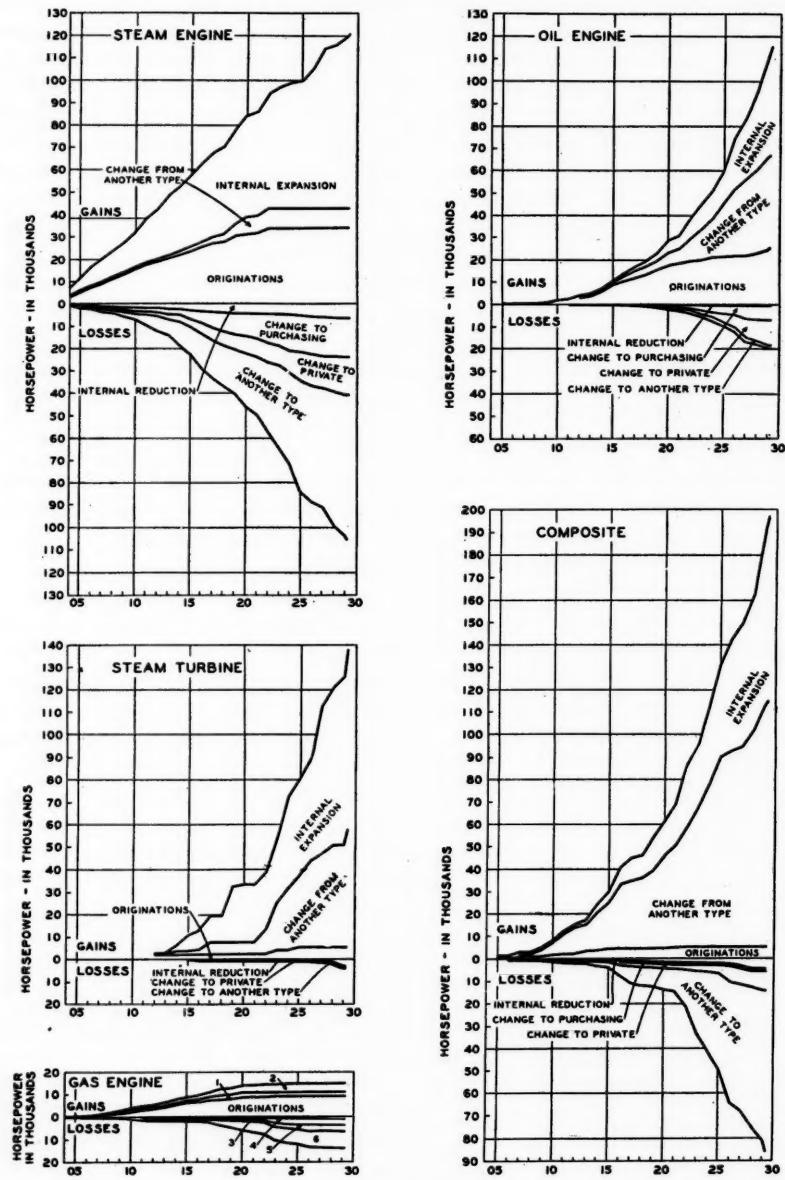
Furthermore, from Chart VII it will be apparent that $\frac{2}{3}$ of this favorable shift has come since 1924 and all of the unfavorable shift occurred prior to that year. Only by a stretch of the imagination can one associate this technological adjustment with politics. Neither can one attribute it entirely to the aggressiveness and foresight of the operators of publicly owned plants. It is largely attributable rather to the aggressiveness of a private capital group which has but recently improved and promoted¹² a type of prime mover well adapted for use under the competitive conditions surrounding the operation of small isolated plants.

Here, then, is a picture of internal readjustment of prime mover types and internal expansion of existing oil engine equipment which indicates a quickening interest in, and a demand for, oil engines

¹¹ Page 82.

¹² By "payment out of earnings" plans, for example.

CHART VII

GAINS AND LOSSES IN HORSEPOWER CAPACITY OF PRIME-MOVER TYPES
WEST NORTH CENTRAL GEOGRAPHIC DIVISION, 1904-APRIL 1, 1930

1. Internal Expansion
2. Change from Another Type

3. Originations
4. Change to Purchasing

5. Internal Reduction
6. Change to Private

after 1924.¹³ That oil engine manufacturers have benefited from the experience of earlier failures with their prime mover, and have but recently found a new and wider market for an improved product is apparent. As a result, these technological factors are proving an aid, rather than an hindrance to municipal ownership.

Where this prime mover was the only one involved, technological factors tending to reduce horsepower capacity of publicly owned plants have come off a poor second in their contest with the factors described above. Of the total losses, 58.8% resulted from a change to private ownership and 31.7% from a change to purchasing (Table XI). Combined, these represent 90.5% of the total losses in oil engine plants, and since they all occurred after 1916, the transmission line development is their probable cause. Yet, as previously noted, from the standpoint of horsepower capacity capital representing internal technological developments strengthened municipal ownership of oil engine plants by five while capital representing transmission line development weakened it by one.

It is also interesting to note that about 83% of the horsepower lost to private ownership and about $\frac{1}{2}$ of that lost by a change from generating to purchasing occurred after 1924. Consequently, we must conclude that the two groups of capital were competing in the same field at the same time. But again these types of change came off second best,

since the average size of those plants changing to purchasing establishments after 1924 was only 136 hp. and of those changing to private ownership 107 hp.; whereas, in 1925, the average size of oil engine plants in existence was 209 hp. and on April 1st, 1930, was 472 hp.¹⁴

One can hardly escape the conviction that these plants, at least since 1924, have been increasing their mechanical efficiency as well as their capacity, thereby preparing some bed rock levels of resistance to external technological factors which privately owned systems have definitely encountered.¹⁵ Here is tangible proof of a second hypothesis previously made¹⁶—namely, that recent developments in prime movers have been partially responsible for the slowing up in the rate of decline in numbers of municipally owned generating plants since 1926.

Steam Turbine Plants

Turning now to the analysis of cumulated gains and losses in steam turbine plants as pictured on Chart VII, we have an example of internal expansion and adjustment even more striking than that shown by oil engine plants. It is striking first because of the small number of plants which have participated in the growth and readjustment. Only five plants in this territory originated with steam turbines as the only type of primary power, only two have changed to private ownership, none has changed to purchasing all of output, 21 have

¹³ A similar analysis of the additions of oil engine capacity to existing oil engine plants, representing 42.1% of the total gains (Table XI) only strengthens the above conclusions. The reader is referred to the chart and table for this picture.

¹⁴ In this connection, a word should be added regarding originations. These totaled 25,016 hp. in oil engine plants, over the period 1904-1930. As indicated on Chart VII, about 80% accrued prior to 1924. The aver-

age size of these plants at date of origin was 76 hp. prior to 1924; after that date 283 hp.

¹⁵ It is recognized that some of these plants remaining in existence and expanding their capacity did not have the opportunity to purchase energy from or sell their equipment to a private company owning available transmission lines. The extent to which this is true is being measured but is not as yet available.

¹⁶ 6 *Journal of Land & Public Utility Economics* 242 (August, 1930).

entered the steam turbine status at the expense of some other type of prime mover, one plant lost this status by adding some other type, and the largest number of these steam turbine plants in existence in any one year was 23, at April 1st, 1930.¹⁷ As municipal plants go, this has been distinctly a large plant movement.¹⁸ The average size of such plants in existence has ranged from a minimum of 790 hp. in 1913 to a maximum of 5,900 hp. at April 1st, 1930.¹⁹ In contrast, oil engine plants increased their average size six times during the same period but are still less than 1/12 the average size of steam turbine plants.²⁰

The expansion is also striking because of the preponderance of gains over losses.²¹ These plants, though few in number, were large enough to be on a competitive basis with privately operated systems. Here, again, internal technological forces have operated to the advantage of municipal ownership and the external forces of transmission line development have hardly been able to make an impression upon the internal cumulation of horsepower capacity. The incidence of these economic influences does not fall in precisely with those motivating the expansion of oil engine plants. In the latter the movement has taken place in predominantly small markets and has been promoted by private capital engaged in the manu-

facture of oil engines. In these steam turbine plants, however, the aggressiveness of equipment manufacturers has played a relatively small part in expansion.²²

Steam Engine Plants

The very size of the gains and losses of this type of plant lends emphasis to the important part which this prime mover has played in the municipal ownership movement. A total of 121,032 hp. was added by these plants after 1903 and 105,896 hp. was lost. The net gain, 15,136 hp., when added to the 33,781 hp. in existence at the close of 1903 gives 48,917 hp. in existence at April 1st, 1930 (Table XI).

We find that 61.4% of the losses in horsepower of steam engine plants resulted from a substitution of some other type of prime mover. Gains resulting from a substitution of steam engines for some other type were only 7.4% of the total gains. This, again, provides a valuation of the unfavorable trade balance in these engines noted in the earlier discussion of Table XI. However, it is equally noteworthy that 64.6% of the gains in steam engine plants resulted from the addition of steam engines to existing steam engine capacity. Reference to Chart VII, however, indicates that the bulk of such gains had occurred by 1922. Even so, the fact that municipalities were continuing to expand their capacity as late

¹⁷ Table II, first article, 6 *Journal of Land & Public Utility Economics* 248 (August, 1930).

¹⁸ The influence of a few large plants on internal expansion was discussed in the second article, 6 *Journal of Land & Public Utility Economics* 393 (November, 1930). A large part of this expansion occurred as a result of the expansion of steam turbine plants discussed above and composite plants containing steam turbines as a part of their equipment, discussed on page 87.

¹⁹ In comparison, the average size of all privately owned plants in this division was 7,440 hp. on January 1st, 1930.

²⁰ Since the arithmetical average in this case tends to

accentuate differences in size, the limitations of these averages must be kept in mind. A modal average would have to be computed for each year, a task unwarranted by the importance of the result. See Table X of second article and discussion of modal average of all plants, regardless of type.

²¹ Total gains, 138,980 hp.; total losses 3,865 hp.

²² The field is hardly large enough to attract equipment manufacturers who already have a much larger market in the privately owned central stations. Consequently, in this case, we can hardly characterize the growth in horsepower capacity as the result of one group of private capital promoting municipal ownership at the expense of another.

as 1930 with this type of prime mover is a significant item to be noted.

In 1882, the steam engine provided municipalities with a vehicle in their race with private capital for the electric business. Since then it has continued to be an important vehicle in the municipal ownership movement, though a continually more decrepit and uncertain one. With a capacity of 48,917 hp. remaining in service in steam engine plants²³ on April 1st, 1930, this type of plant contained nearly 13% of the total horsepower operated under public ownership. Municipal plants in this territory still have before them a sizeable job of scrapping obsolete equipment,²⁴ but if the "balance of trade" in engines continues as unfavorable as it was on April 1st, 1930 (Table XI) the job will soon be completed.

Gas Engine Plants

One can hardly discount the importance of small internal combustion engines—of which the gas engine is but one type—in the economic history of this western territory. These engines have been servants to the individual, to the family and to other small groups where such service was important in lifting the burden of drudgery from the backs of pioneers. However, the gas engine is rather out of the picture in the present era of power transportation. It is not now and never has been a significant competitive attribute of municipal ownership, serving merely as a stop-gap for the arrival of something better. The recent extension of long distance natural gas lines into this territory may once more stir manufacturers of gas engines to a renewed activity but the remaining field for their use in municipal electric

plants is from present indications too narrow to warrant anticipation of much expansion in this particular direction. The remaining field is largely in the sub-marginal communities and in these, isolated plant operation may be prolonged over a longer period where natural gas lines provide a cheap fuel.

The gas engine portion of Chart VII is interesting principally as a contrast with the development of other types. Here, certainly, one would expect that external technological factors would win the contest over internal factors but we find the bulk of the loss in horsepower (51.5%) was the result of a change to some other type of prime mover—which is distinctly a factor tending to prolong the municipal ownership status of the plant. Practically no internal expansion has occurred in gas engine plants, the average size being the same in 1930 as it was in 1910. Yet these engines have played an important part in the rise and decline of numbers of plants, ranking third by prime mover types with 72 plants as late as 1922.²⁵ By the end of 1929 only eight remained.

Composite Plants

With 111,346 hp. in existence on April 1st, 1930, the composite plants ranked second only to steam turbine plants in capacity. As previously noted, in the trading of prime movers, composite plants have handled about $\frac{1}{2}$ the total business. If we examine the cross-section of this trading area on April 1st, 1930 (Table XI), we find that the composite plants have gained 110,347 hp. in the trading process (representing 56% of the total gains) against a loss of 71,835 hp. (representing 83.5% of the total losses). These figures indicate that a portion of

²³ In addition 24,075 hp. remained in existence in composite plants.

of more recent advances made in steam engine design, particularly the uni-flow engine.

²⁴ Table II, second article, 6 *Journal of Land & Public Utility Economics* 248 (August, 1930).

²⁵ This statement must be modified by a recognition

the composite status is probably fixed rather than purely transitional in character. While the "divorce" rate is very high, some of the combinations of prime movers are permanent in character. The latter are probably responsible in large part for the fact that 41.4% of the total gains in plants of this character were by internal expansion, leaving but 2.6% of the total to originations.²⁶

The Horsepower in Existence by Prime Mover Types

Annual Figures. For each type of prime mover, the "surplus" in terms of horsepower capacity at the close of any

²⁶ There is no particular reason, of course, why new plants other than hydro-electric, should start with more than one type of prime mover.

year is the resultant of cumulated gains and losses of previous years. In the contest between technological forces tending to reduce numbers of plants and internal forces tending to increase horsepower, the outcome of the battle rather than the intervening surges is the thing of primary interest. Turning, then, to Table XII, we note the net result of the contest at the end of each year and at the close of the entire 26-year period. This table takes a cross-section cut through Chart VII at each year and gives the net result of the gains and losses at each point in the history of the contest for each prime mover type.

The tide of battle is best illustrated by the rate of increase or decrease in the amount of the net horsepower remain-

TABLE XII. HORSEPOWER CAPACITY OF MUNICIPAL GENERATING ESTABLISHMENTS, WEST NORTH CENTRAL GEOGRAPHIC DIVISION, BY TYPE OF PRIMARY POWER, BY YEARS 1903-1929 AND ON APRIL 1, 1930.

| Year | HORSEPOWER CAPACITY | | | | | |
|--------------------|---------------------|---------------------|------------------|------------------|------------------|---------------|
| | Steam Engines Only | Steam Turbines Only | Oil Engines Only | Gas Engines Only | Composite Plants | Miscellaneous |
| 1903 | 33,781 | ..... | ..... | 84 | 212 | 1,025 |
| 1904 | 40,189 | ..... | ..... | 100 | 212 | 1,025 |
| 1905 | 44,454 | ..... | 50 | 260 | 1,232 | 1,366 |
| 1906 | 48,962 | ..... | 385 | 628 | 1,547 | 1,366 |
| 1907 | 50,700 | ..... | 385 | 1,263 | 2,827 | 1,366 |
| 1908 | 54,190 | ..... | 550 | 1,833 | 2,827 | 1,498 |
| 1909 | 56,219 | ..... | 820 | 2,642 | 4,607 | 1,248 |
| 1910 | 59,039 | ..... | 2,000 | 3,907 | 7,137 | 459 |
| 1911 | 62,634 | ..... | 2,293 | 4,477 | 11,675 | 479 |
| 1912 | 64,402 | 2,300 | 3,798 | 5,042 | 14,542 | 549 |
| 1913 | 68,374 | 2,370 | 4,863 | 6,032 | 15,582 | 820 |
| 1914 | 67,614 | 6,360 | 6,835 | 6,902 | 21,159 | 695 |
| 1915 | 68,541 | 12,072 | 10,179 | 7,407 | 26,199 | 818 |
| 1916 | 68,274 | 12,442 | 13,146 | 7,159 | 33,642 | 1,938 |
| 1917 | 67,638 | 18,925 | 16,245 | 7,259 | 34,126 | 2,730 |
| 1918 | 67,059 | 18,925 | 18,257 | 8,894 | 34,256 | 2,843 |
| 1919 | 71,904 | 32,392 | 21,305 | 8,234 | 42,226 | 2,983 |
| 1920 | 71,850 | 33,042 | 26,108 | 7,674 | 47,621 | 2,986 |
| 1921 | 70,210 | 33,042 | 27,470 | 7,282 | 55,376 | 3,002 |
| 1922 | 70,820 | 38,592 | 34,608 | 6,446 | 65,532 | 3,257 |
| 1923 | 65,844 | 53,843 | 38,791 | 4,156 | 62,801 | 3,631 |
| 1924 | 60,792 | 72,293 | 43,316 | 3,194 | 70,844 | 3,314 |
| 1925 | 49,802 | 79,908 | 49,576 | 2,598 | 81,509 | 3,255 |
| 1926 | 50,914 | 89,757 | 62,062 | 1,592 | 77,894 | 3,170 |
| 1927 | 57,086 | 112,113 | 66,550 | 1,000 | 82,165 | 2,404 |
| 1928 | 52,541 | 119,228 | 76,971 | 885 | 87,316 | 2,814 |
| 1929 | 49,067 | 122,040 | 89,769 | 700 | 109,581 | 2,814 |
| 1930 To April 1st. | 48,917 | 135,115 | 95,377 | 700 | 111,346 | 2,814 |

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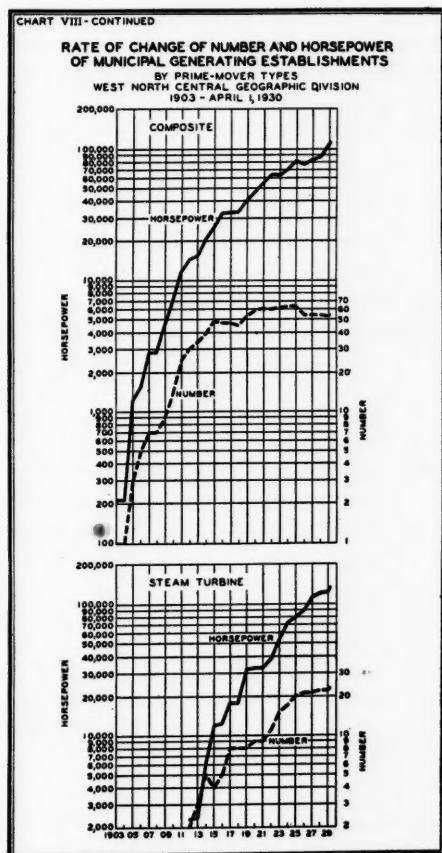
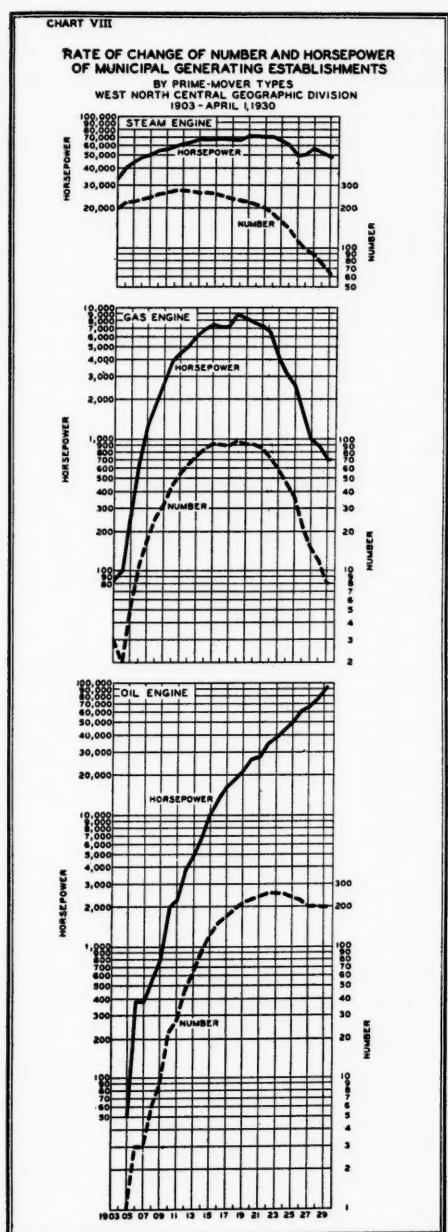
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ing. This is accomplished by plotting the figures of Table XII to logarithmic scale (Chart VIII). The relative strength

of the two different types of technological factors is revealed by plotting the progress of numbers of plants along with that of horsepower. The degree of "resistivity" or response of each prime mover type to these factors is now revealed. One striking thing about these charts is that throughout the entire period there has been a tendency—slight in some cases, pronounced in others—to enlarge the size of plant in all types except the gas engine plants. Hence, municipal plants in this territory have been gradually building up a resistance to the technological factors promoting interconnection by increas-



ing their size. Under such circumstances it was inevitable that plants in this territory, given sufficient time, would grow with the market demands and eventually establish themselves on a competitive plane that has caused some apprehension among the private utilities which have willingly or unwillingly permitted this expansion to proceed. Transmission line development did not spread into this district as rapidly as it did in other more favorable market areas and consequently it has encountered resistance from plants already well established. It proceeded to clear out the weaker plants but seems to have about completed the process. The competition has become stronger as the older plants have scrapped their obsolete equipment and expanded in size. As long as gas engines and steam engines were the principal sources of generation, and as long as the size of the plant was less than 300 hp.²⁷ the movement toward interconnection was winning in the contest. But in 1917, of the 568 generating plants in existence, 456 (80%) were less than 301 hp. in size and 251 (55%) of these were either gas or steam engine plants; whereas by April 1st, 1930 only 129 (36%) of the remaining 357 plants were under 301 hp. and only 24 (19%) of these used gas or steam engines for primary power. Again, this is not a picture of political agitation, although we may admit it has been an influence. It is rather a picture of internal expansion to meet a growing market—often a market in which there was no effective

²⁷ It will be recalled from Table x and Chart vi of the second article that plants of 100 hp. and under had the most rapid decline in number, 101-200 hp. the next, and 201-300 hp. the next. Only a slight decline was registered in the 301-500 hp. group and no decline at all in the remaining larger groups.

²⁸ As is evidenced by Nebraska where the changes to private ownership were: 1926, 2; 1927, 4; 1928, 7; 1929, 13, and the average size of the plants changing was 160 hp.

outside competition and a picture of transmission line development encountering stiffer competition as it sweeps aside the weaker competitors. Presumably, the balance of these small plants are yet to be swept aside in the competitive struggle²⁹ but the evidence presented in this analysis indicates that the contest between private and municipal ownership is settling down to a plane on which the technological factors in the competition are more nearly equalized.

In order to visualize more concretely the part being played by each type of prime mover in the equalization process, a method of measuring the relative stability of each type during the 26-year period is presented. The following stability ratios²⁹ simply indicate the amount of horsepower in each prime mover type remaining in existence at the end of certain periods expressed as a percentage of the total horsepower installed in that type of plant during the period:

STABILITY RATIOS, HORSEPOWER CAPACITY

| Type of Prime Mover | 1904-1916 | 1904-1924 | 1904-1926 | 1904-1930 |
|---------------------|-----------|-----------|-----------|-----------|
| Steam Turbine..... | 97.1 | 99.5 | 99.6 | 97.2 |
| Oil Engine..... | 96.5 | 85.8 | 80.1 | 82.6 |
| Composite..... | 82.0 | 63.3 | 54.8 | 56.4 |
| Steam Engine..... | 70.3 | 45.9 | 36.5 | 31.6 |
| Gas Engine..... | 76.9 | 22.2 | 10.9 | 4.8 |

The vertical array of these percentages gives the relative stability of each type in each period. Of the total horsepower which had been installed in steam engine plants from 1904 to 1916, 70.3% remained in existence at the end of the first period (1916). If the period is

²⁹ This device was used by Professor H. B. Dorau to express the ratio of numbers of all municipal establishments in existence at the end of any period to the total number of establishments which had ever existed in that period. See *Changing Character & Extent of Municipal Ownership in the Electric Light & Power Industry* (Chicago: Institute for Research in Land Economics and Public Utilities, 1929).

extended to 1924, only 45.9% of the total remained; by 1926 only 36.5% remained and for the entire 26-year period the ratio had dropped to 31.6%. In contrast, steam turbine plants retained in each period a very high percentage of their total capacity installed. This has been the most stable of the prime mover types. These plants have practically held their own against all factors tending to reduce their total installed capacity. They have evidently had the necessary attributes of size and mechanical efficiency to compete successfully. Oil engine plants rank second to steam turbines in stability. The activity of oil engine manufacturers from 1924 to 1926 is indicated by the jump in the ratio from 85.8% to 89.1% in these two years. However, the ratio dropped in 1930 to 82.6%. The transitional character of the composite plant is largely responsible for this lack of stability. Gas engines have been least stable of the various types with only 4.8% of their total capacity left in 1930.

For convenience in comparison, the stability ratios for numbers of plants are also presented:

STABILITY RATIOS, NUMBER OF GENERATING ESTABLISHMENTS

| Type of Prime Mover | 1904-1916 | 1904-1924 | 1904-1926 | 1904-1930 |
|---------------------|-----------|-----------|-----------|-----------|
| Steam Turbine..... | 83.3 | 94.4 | 91.3 | 88.5 |
| Oil Engine..... | 97.4 | 71.7 | 59.7 | 48.6 |
| Composite..... | 74.6 | 49.2 | 38.0 | 33.1 |
| Steam Engine..... | 68.1 | 35.2 | 24.3 | 15.4 |
| Gas Engine..... | 76.5 | 27.9 | 12.9 | 4.7 |

Again, the vertical array presents a picture of the relative stability of each type. Steam turbines lead the group in stability, with 88.5% of all such plants ever in existence remaining in 1930. All other types except gas engines are considerably less stable in numbers than in horsepower capacity, reflecting the internal expansion offsetting the losses in numbers. The percentages for gas

engine plants reflect the lack of this internal expansion throughout the period.

Conclusions

The attention of the public, following the lead of private operators and municipal ownership advocates, has been focused on the political arena where the merits and demerits of public ownership in general have been debated. Meanwhile, economic and technological forces have been working almost unnoticed. In these studies an attempt is being made to analyze these forces. By doing so we are able to distinguish the plateau of the municipal ownership movement from the peaks arising thereon. When this view is taken, some of the activity in the municipally owned section of the industry is explainable chiefly in the light of the very rapid growth of the industry as a whole. The data on prime movers in these articles enable elimination of many of these features of rapid growth. Instead we gain a view of more normal trends.

From this vantage point the picture of the municipal ownership movement in the West North Central geographic region assumes more definite form. As late as 1910, private capital in this territory was still concerned with economizing without the use of transmission lines. Under such conditions the market area was limited and the market development was essentially accidental rather than intensive or extensive in character. The increasing demand for service, in communities where private capital could not or would not provide the service under the franchise conditions, resulted in a growth of municipally owned generating plants above the plateau of normal development. These plants generally powered by noncondensing steam engines or gas engines and for most part under 300 horsepower

in capacity provided the rise of municipal ownership above the plateau of its normal growth just as, subsequently, they were largely responsible for the fall below this level.

With the development of power transmission, the interest of private capital in modernization shifted to the economies of extensive rather than intensive market development and in the resulting expansion from 1916 to 1926 municipal plants were absorbed in large numbers. While this may be looked upon as a competitive movement, the uneconomical size and obsoleteness of generating equipment existing in many of these isolated municipal plants, with their limited possibilities of market development, rendered them largely *hors de combat* in the competitive struggle. With the coming of a new source of supply, cost and quality of service were now the important elements in expanding as well as satisfying demand and neither local pride of ownership nor political organization could withstand these economic forces of lower cost and higher quality service which carried the transmission line net outward from large centers and from the east to the western and southern frontiers.

In this territory, however, other influences came into prominence before

the new technology could impress its full effect upon the character and extent of municipal ownership. Many plants immediately adjusted themselves to the new competitive conditions by shifting to purchasing all or part of output; others have more slowly adjusted themselves by installing more efficient equipment. The effect of the latter adjustment becomes clear after 1925. With private capital striking this economic plateau we now discover in certain areas a slowing up in the rate of absorption of municipally owned generating plants into privately owned systems.

Looking to the future on the basis of the past normal trends, one feels justified in saying that as the economically weak municipal plants succumb to superior competitors, the remaining resistance to change of ownership or technical status becomes less extensive but stronger. Hence, the expectation is that, barring further war-time upheavals and price changes, political revolutions or radical technological changes the municipal ownership movement will gradually reach its normal competitive level, generating a part, in some cases large, in others small, but on the whole a relatively small part of the total—of that dynamo of America's energy—electricity.

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Economic Research.

SUMMARIES OF RESEARCH

In this department are given brief accounts of investigations in progress and statements of tentative conclusions reached in the course of work by the staff of the Institute and others associated with the Institute's work.

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| Public Utility Financing Through November, 1930 . . . Roy L. Reiverson | 97 |

COMMENTS ON LEGISLATION AND COURT DECISIONS

Here the readers of the JOURNAL will find a miscellany of summaries and interpretations of recent legislation, court decisions, and documents that have economic significance in land and public utility problems.

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BOOK REVIEWS

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Summaries of Research

Cost of Railway Capital Through June, 1930*

THE year 1929 was the first since 1920 to show an increase in the total cost to the companies of all types of borrowed railway capital. Prior to 1929 there had been a constantly decreasing cost with only minor fluctuations. The reversal in the downward trend of railway capital cost began in the third quarter of 1928 and continued through the third quarter of 1929. The increase in costs over this period reflected the general lack of investor interest in fixed income securities during the period of speculation and high stock prices preceding the stock market crash of October, 1929. Following that break investors again turned their attention to bonds and short-term securities and the cost of railway capital declined somewhat.

The change in the cost of railway capital followed the same general trend for each class of security. Since a very large proportion of the financing in 1928 was done in the first two quarters, the large increase in cost which occurred in the third quarter did not prevent the average cost of capital for that year from falling to the low point for the entire period (Table I). However, in 1929 the cost of all classes of capital (measured by the weighted average yield at price to company) rose from 4.78% to 5.20%. That of bonds increased from 4.77% to 5.09%, equipment trust certificates from 4.58% to 5.23%, and miscellaneous securi-

ties from 5.25% to 6.50%. The cost of all classes of securities and of bonds and of equipment trust certificates reached the peak in the third quarter of 1929, when weighted average yields of 5.52%, 5.62%, and 5.36% respectively were reported. Miscellaneous securities reached their peak in the second quarter, reporting an average yield of 6.90%. As indicated above, costs dropped in the fourth quarter of 1929. The failure of miscellaneous securities to follow the general trend is probably attributable rather to the small number of issues making up the total, than to any inherent advantage or disadvantage of this class of security. The average yields at cost to company of all types of securities showed a marked decrease in the first six months of 1930 over the high costs of the third quarter of 1929. Thus all types of capital were sold during the first six months of 1930 at a cost to the company yielding 4.99%, bonds at a cost yielding 4.98%, equipment trust certificates at 4.73%, and miscellaneous securities at 5.53%.

A significant factor affecting both the total cost of railway capital and the cost of financing, or the bankers' margins, in 1929 was the great increase in both the absolute and relative volume of equipment trust certificates. In 1928 equipment trust certificates sold had a par value of \$55,729,000, amounting to 11.5% of the total par value of all securities sold (\$482,733,628).¹ In 1929 the par

203-204 (May, 1929); and 6 *Ibid.*, 98-101 (February, 1930).

¹ The par values recorded here are those of securities sold on which the cost to the company was available. It excludes a very small volume of securities sold, for which cost to company was not obtainable.

*See Herbert B. Dorau, "The Cost of Railway Capital Under the Transportation Act of 1920," 3 *Journal of Land & Public Utility Economics* 1-20 (February, 1927); 3 *Ibid.*, 219-221 (May, 1927); 3 *Ibid.*, 427-430 (November, 1927); 4 *Ibid.*, 206-208 (May, 1928); 4 *Ibid.*, 427-428 (November, 1928); 5 *Ibid.*,

value of equipment trust certificates sold increased to \$124,854,000 or 21.8% of the total (\$573,174,734). In the first six months of 1930 the relative significance of equipment trust certificates again decreased, dropping to 12.1%. The total par value of equipment trust certificates sold during this six months' period was \$90,853,800; that of all securities, \$745,930,074.

It is outside the scope of this study to analyze in detail the factors which brought about these changes in the volume of financing through equipment trust certificates, but certain elements contributing to this change in volume

may be suggested: the advantage to the companies of issuing securities of relatively low capital cost² in a period of rapidly increasing costs; the fact that railroads were improving and increasing their rolling stock during this period rather than developing roadbeds, terminals, etc. Moreover, since equipment trust certificates are generally a shorter term security than bonds they might have greater marketability in a financial market such as that of 1929. It is sufficient to note that because of this relatively increased volume of equipment trust certificates the cost of all classes of capital did not increase as much in 1929

quarters of the latter year the cost for equipment trust certificates exceeded that for bonds, it did not reach as high a level of cost in the third quarter. Neither the cost nor volume of financing by equipment trust certificates fluctuated as widely in the quarters of 1929 as did the cost and volume of financing by bonds.

TABLE I. RELATION OF COST OF FINANCING TO TOTAL COST OF CAPITAL AND TO RETURN EARNED ON INVESTMENT

| | COST OF CAPITAL | | | | | | RETURN EARNED ON | | | |
|-----------------|----------------------------|---------------------|---------------------------|--------------------|---------------------------------|--------------------|---------------------------|--------------------|-----------------|-------|
| | All Classes | | Bonds | | Equipment Trust Certificates | | | | | |
| | Cost of Financ- ing* | Cost of Capital† | Cost of Financ- ing | Cost of Capital | Cost of Financ- ing | Cost of Capital | Cost of Financ- ing | Cost of Capital | Invest- ment | |
| 1920..... | .52 | 7.29 | .50 | 7.34 | .56 | 7.28 | .... | 7.01 | .06 | 5.45 |
| 1921..... | .47 | 7.21 | .50 | 7.23 | .08 | 6.76 | .39 | 7.64 | 2.96 | 3.94 |
| 1922..... | .29 | 5.86 | .26 | 5.92 | .35 | 5.71 | .... | 6.00 | 3.74 | 4.85 |
| 1923..... | .32 | 5.61 | .16 | 5.38 | .38 | 5.72 | .67 | 6.45 | 4.56 | 6.95 |
| 1924..... | .24 | 5.54 | .23 | 5.61 | .08 | 5.27 | .86 | 6.11 | 4.44 | 6.70 |
| 1925..... | .24 | 5.45 | .21 | 5.63 | .31 | 5.06 | 1.20 | 5.20 | 4.89 | 8.19 |
| 1926..... | .21 | 5.24 | .18 | 5.36 | .24 | 4.97 | .54 | 5.26 | 5.15 | 9.43 |
| 1927..... | .16 | 5.06 | .16 | 5.16 | .10 | 4.61 | .74 | 5.68 | 4.41 | 7.78 |
| 1928..... | .14 | 4.78 | .13 | 4.77 | .10 | 4.58 | .65 | 5.25 | 4.75 | 8.79 |
| 1929..... | .23 | 5.20 | .20 | 5.09 | .15 | 5.23 | .75 | 6.50 | .... | .... |
| 1st quarter... | .22 | 4.99 | .22 | 4.97 | .17 | 5.04 | .... | 5.46 | .... | .... |
| 2nd quarter... | .15 | 5.26 | .15 | 5.27 | .15 | 5.18 | .... | 6.90 | .... | .... |
| 3rd quarter... | .16 | 5.52 | .34 | 5.62 | .16 | 5.36 | .... | 6.00 | .... | .... |
| 4th quarter... | .38 | 5.14 | .55 | 4.86 | .14 | 5.22 | .75 | 6.75 | .... | .... |
| 1930 | | | | | | | | | | |
| 1st quarter... | .16 | 4.97 | .17 | 4.97 | .11 | 4.83 | .... | 5.50 | .... | .... |
| 2nd quarter... | .14 | 5.00 | .14 | 4.99 | .12 | 4.72 | .... | 5.54 | .... | .... |
| 1st 6 months... | .14 | 4.99 | .15 | 4.98 | .11 | 4.73 | .... | 5.53 | .... | .... |
| 1920-1929..... | .25 | 5.53 | .23 | 5.55 | .25 | 5.36 | .76 | 6.00 | 3.96‡ | 6.95‡ |

*Difference between yield per dollar to maturity at price to the company, and at the price paid by the investor.

†Yield per dollar on securities for which price to the company is available.

‡1920-1928.

as the increases in each class of security would seem to warrant.

*Cost of Financing.*³ The changing significance of high- and low-cost securities leads to apparent inconsistencies in the measurement of the cost of financing, or the average bankers' margins. In 1929 the average cost of financing of each type of security increased, while the average cost of financing for all securities decreased, except when measured by yield difference (Table II). A somewhat smaller sample is used in determining the average cost of financing (or the bankers' margins) than in determining the average total cost of capital, since both the price to the company and to the investor are not reported for all issues. In this smaller sample equipment trust certificates, which as a class are generally lower-cost securities, become even more

significant than in the larger sample noted above. Thus in 1928 the par value of equipment trust certificates sold, reporting both price to company and price to investor, amounted to only 8.55% of the total while in 1929 it increased to 45.08%. As a result of the relative importance of low average cost securities, the cost of financing as measured by the difference between the average price per hundred received by the company and the average price per hundred paid by the investor ($y-o$) dropped from 2.17 in 1928 to 1.71 in 1929. Measured by the ratio of the bankers' share to the value of the issues at the price at which the investor absorbed them ($\frac{z}{x}$), and to the actual dollars received by the company ($\frac{z}{n}$), the cost of financing dropped from 2.22 to 1.79 and from 2.27 to 1.76 respectively. Since the importance of equipment trust certificates in 1929 has been unduly emphasized in the smaller sample, the average cost of financing of

³ Total "cost of capital" includes all costs incurred in procuring capital. "Cost of financing" refers only to that part of the total cost which accrues to the bankers.

TABLE II. SUMMARY OF COST OF FINANCING EXPRESSED IN VARIOUS WAYS; BY YEARS, AND FOR THE PERIOD, 1920-1929

| Year | All Classes | | | | Bonds | | | | Equipment Trust Certificates | | | | Miscellaneous | | | |
|-------------|-------------|---------------|---------------|------------------|-------|---------------|---------------|------------------|------------------------------|---------------|---------------|------------------|---------------|---------------|---------------|------------------|
| | $y-o$ | $\frac{z}{x}$ | $\frac{z}{n}$ | Yield Difference | $y-o$ | $\frac{z}{x}$ | $\frac{z}{n}$ | Yield Difference | $y-o$ | $\frac{z}{x}$ | $\frac{z}{n}$ | Yield Difference | $y-o$ | $\frac{z}{x}$ | $\frac{z}{n}$ | Yield Difference |
| 1920 | .66 | 3.66 | 3.80 | .52 | 3.47 | 3.47 | 3.59 | .50 | 3.98 | 3.97 | 4.13 | .56 | ... | ... | ... | ... |
| 1921 | 4.38 | 4.51 | 4.72 | .47 | 4.54 | 4.68 | 4.91 | .50 | 2.44 | 2.44 | 2.50 | .08 | 2.68 | 2.78 | 2.86 | .39 |
| 1922 | 3.25 | 3.36 | 3.48 | .29 | 3.55 | 3.69 | 3.83 | .26 | 2.28 | 2.30 | 2.35 | .35 | ... | ... | ... | ... |
| 1923 | 2.54 | 2.59 | 2.66 | .32 | 2.65 | 2.74 | 2.82 | .16 | 2.55 | 2.58 | 2.65 | .38 | 1.51 | 1.52 | 1.55 | .67 |
| 1924 | 2.67 | 2.73 | 2.80 | .24 | 3.16 | 3.26 | 3.37 | .23 | 1.86 | 1.88 | 1.91 | .08 | 1.71 | 1.71 | 1.74 | .86 |
| 1925 | 2.49 | 2.55 | 2.62 | .24 | 2.74 | 2.82 | 2.90 | .21 | 1.75 | 1.76 | 1.79 | .31 | 4.75 | 4.80 | 5.04 | 1.20 |
| 1926 | 2.23 | 2.28 | 2.34 | .21 | 2.62 | 2.62 | 2.69 | .27 | 1.18 | 1.18 | 1.50 | .52 | 1.00 | 1.01 | 1.02 | .54 |
| 1927 | 2.39 | 2.46 | 2.53 | .16 | 2.60 | 2.70 | 2.77 | .16 | .66 | .66 | .66 | .10 | 2.00 | 2.02 | 2.06 | .74 |
| 1928 | 2.17 | 2.22 | 2.27 | .14 | 2.33 | 2.38 | 2.44 | .13 | .64 | .64 | .65 | .10 | 1.75 | 1.76 | 1.79 | .65 |
| 1929 | 1.71 | 1.79 | 1.76 | .23 | 2.46 | 2.59 | 2.52 | .20 | .89 | .93 | .92 | .15 | 2.00 | 2.00 | 2.00 | .75 |
| 1st quarter | 2.25 | 2.38 | 2.33 | .22 | 2.32 | 2.45 | 2.39 | .22 | 1.02 | 1.04 | 1.05 | .17 | ... | ... | ... | ... |
| 2nd quarter | 1.58 | 1.64 | 1.61 | .15 | 2.55 | 2.58 | 2.64 | .15 | .91 | .95 | .94 | .15 | ... | ... | ... | ... |
| 3rd quarter | .94 | .99 | .98 | .16 | 3.50 | 3.68 | 3.55 | .34 | .90 | .95 | .94 | .16 | ... | ... | ... | ... |
| 4th quarter | 1.66 | 1.73 | 1.70 | .38 | 3.05 | 3.21 | 3.11 | .55 | .80 | .84 | .83 | .14 | 2.00 | 2.00 | 2.00 | .75 |
| 1930 | 2.58 | 2.76 | 2.68 | .16 | 2.71 | 2.90 | 2.82 | .17 | .64 | .65 | .64 | .11 | ... | ... | ... | ... |
| 1st quarter | 2.04 | 2.15 | 2.10 | .14 | 2.35 | 2.49 | 2.43 | .14 | .74 | .74 | .74 | .12 | ... | ... | ... | ... |
| 2nd quarter | 2.22 | 2.34 | 2.29 | .14 | 2.48 | 2.64 | 2.57 | .15 | .72 | .73 | .72 | .11 | ... | ... | ... | ... |
| 1st 6 mos. | 2.69 | 2.75 | 2.83 | .25 | 3.02 | 3.12 | 3.23 | .23 | 1.87 | 1.89 | 1.93 | .25 | 1.73 | 1.76 | 1.79 | .76 |
| 1920-1929 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

$y-o$ is the difference between the average price per hundred received by the company and the average price per hundred paid by the investor.

$\frac{z}{x}$ Ratio of bankers' share to the value of the issue or issues at the price at which the investor absorbed them.

$\frac{z}{n}$

Ratio of the bankers' share to the actual dollars received by the company.

n

Yield difference—difference between yield per dollar to maturity at price to the company, and at price paid by the investor.

all classes of securities has been corrected⁴ to express more accurately the changes in the cost to the industry. The averages thus corrected still show a decline in the cost of financing of all classes of securities in 1929 as compared with 1928, but not as marked a decline as has been noted above. Thus, this cost expressed as y-o declined from 2.17 to 2.04, as $\frac{z}{x}$ from 2.22 to 2.15 and as $\frac{z}{n}$ from 2.27 to 2.10. Measured by yield difference the cost increased from .14 to .19 in the corrected averages as compared with an increase from .14 to .23.

It should be noted that the bankers' margins on equipment trust certificates were very much greater in the first quarter of 1929 than in the year 1928. They declined somewhat in the next two

quarters of 1929, although the total cost of this type of capital was steadily rising, but remained well above the average cost reported for 1928. Bankers' margins on bonds, however, increased steadily during these three quarters, declining, as did the total cost of this type of capital, in the fourth quarter of 1929.

Because of the changing relative volume of equipment trust certificates the average cost of financing for all classes of securities (except when measured by yield differences) increased in the first six months of 1930, while the average cost of financing of both bonds and equipment trust certificates decreased. In spite of these decreases the average cost for each type of security for the first six months of 1930 was still well above the average cost of each for the years 1927 and 1928.

MARION R. SUMNER

⁴ This has been done by weighting the classes of securities entering into the sample used for determining cost of financing, by the percentage of the par value sold for

each type of security reporting cost to company to the total par value sold of such securities (the larger sample used in determining total cost of capital).

Public Utility Financing Through November, 1930

Volume of Financing. During the early months of 1930 the volume of public utility financing exceeded, by a comfortable margin, the totals for corresponding periods in previous years. This excess was largely dissipated, however, by inactivity in the closing months of the year (Table I). Indications are, therefore, that the total for the year will run close to the average yearly total of financing for the last four years (Table II).

For the first six months of 1930, volume of capital raising was noticeably ahead of the corresponding periods in previous years, hence a considerable decline must have occurred in financing activity in the second half of the year. The extent to which the volume of financing has fallen off during the second half of 1930 may be observed by com-

paring the index numbers for volume in the first and second quarters of each year with the corresponding indexes for the 11 months of these years.

Utility and Corporate Financing. In spite of the noticeable curtailment in public utility financing in the last half of 1930, the utilities still continue to do almost $\frac{1}{2}$ the new financing in capital markets. Table III suggests two comments: (1) over 46% of the total corporate financing for the first 11 months of 1930 was done by utilities; (2) utility financing became more important during the later months of the year, for the percentage for the first nine months exceeds that for the second quarter and the figure for 11 months is greater than that for nine months.

It might be of interest to note in pass-

ing that financing by the utility groups has been more important in the total of corporate financing in two years of general business depression, namely, 1927 and 1930, than in other years. In the former year public utility issues totalled \$3,000,000,000, or 41% of the total corporate financing tabulated. During 1928 and 1929 this class of financing decreased, both in absolute amount and in relative importance. The year 1930 has shown a larger amount of financing and a very decided increase in comparative significance.

Type of Issue. During the first half of 1930 less than 1/12 (7.8%) of public utility financing was in the form of short-term issues with maturities under five years; since July 1 almost 1/4 has been

short-term, while during October almost 30% and in November over 60% of the volume was so classified (Table IV). These statements picture the change during the last few months in the term of securities issued, and comparison of the percentage for this year with that for former years shows how striking that change has been. Not since 1921 has short-term financing been anywhere near as significant for a like period of time, as for the first 11 months of 1930. The increased significance during the third quarter was caused by a decrease in the total volume of financing, but October and November show an increased amount of short-term issues.

Long-term debt issues also increased in significance in the total volume. They

TABLE I. INDEX NUMBER OF VOLUME OF PUBLIC UTILITY FINANCING, 1919-1930*

| | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| By Months | | | | | | | | | | | | |
| January..... | 100 | 67 | 55 | 46 | 122 | 112 | 199 | 173 | 259 | 176 | 169 | 412 |
| February..... | 48 | 28 | 25 | 47 | 66 | 89 | 172 | 125 | 314 | 220 | 248 | 144 |
| March..... | 25 | 27 | 25 | 43 | 94 | 78 | 144 | 115 | 158 | 190 | 268 | 191 |
| April..... | 5 | 38 | 25 | 50 | 64 | 112 | 69 | 182 | 165 | 318 | 107 | 110 |
| May..... | 15 | 38 | 35 | 150 | 66 | 233 | 103 | 230 | 214 | 203 | 287 | 506 |
| June..... | 26 | 20 | 9 | 96 | 92 | 122 | 118 | 181 | 130 | 317 | 109 | 144 |
| July..... | 41 | 25 | 115 | 44 | 21 | 104 | 90 | 177 | 97 | 48 | 276 | 196 |
| August..... | 20 | 11 | 33 | 22 | 40 | 62 | 93 | 58 | 92 | 82 | 94 | 40 |
| September..... | 54 | 44 | 34 | 147 | 34 | 77 | 110 | 38 | 168 | 169 | 319 | 144 |
| October..... | 24 | 33 | 33 | 77 | 59 | 112 | 92 | 123 | 261 | 180 | 86 | 88 |
| November..... | 8 | 21 | 119 | 43 | 161 | 69 | 102 | 136 | 212 | 127 | 22 | 75 |
| December..... | 20 | 63 | 53 | 54 | 135 | 111 | 153 | 114 | 433 | 167 | 126 | ... |
| By Quarters | | | | | | | | | | | | |
| 1st quarter..... | 100 | 71 | 61 | 80 | 164 | 162 | 299 | 240 | 424 | 340 | 398 | 435 |
| 2nd quarter..... | 27 | 56 | 41 | 172 | 129 | 271 | 168 | 344 | 295 | 487 | 292 | 442 |
| 3rd quarter..... | 67 | 47 | 105 | 123 | 55 | 141 | 170 | 159 | 207 | 178 | 400 | 221 |
| 4th quarter..... | 30 | 68 | 119 | 101 | 266 | 169 | 201 | 217 | 528 | 275 | 99 | ... |
| By Years..... | 100 | 107 | 145 | 212 | 246 | 330 | 373 | 427 | 647 | 570 | 528 | ... |

*Volume for January, 1919; first quarter, 1919; and year 1919 used as a basis for computing index numbers for months, quarters, and years respectively. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*.

In connection with these volume figures of public utility financing it should be noted that:

1. All industrial types of utilities (except steam railroads) are included.

2. Foreign companies offering securities in the United States are included.

3. The volume figures through 1929 are the *Chronicle* figures before the revision made in January, 1930. Beginning this year the *Chronicle* separates "Investment Trust, Trading and Holding Companies (not Primarily Controlling)." Prior to this time such issues had been included partly in the "Public Utility" total and partly in the "Miscellaneous" group. The *Chronicle*, at the same time, revised its totals of public utility financing for the corresponding month of the five preceding years. We have here used the unrevised figures prior to 1930.

It might be suggested that the volume figures for 1930 are not comparable with those of the preceding years. One practical difficulty precludes the possibility of revising the total before 1929 to agree with 1930. That difficulty is the fact that the *Chronicle* figures for the previous five years only are revised, and this revision is made monthly. The only comparison which could be attempted at present would be to make the January and February totals for 1926 through 1930 comparable, but they would then not be comparable with others in the same years nor with earlier years.

In the analysis of these utility financing figures the foreign issues have been eliminated. What appear to be non-controlling investment companies have also been excluded; holding and operating company issues have been segregated (Table IX).

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TABLE II. VOLUME OF PUBLIC UTILITY FINANCING

| First 11 Months of | Average of 11 Monthly Index Numbers | |
|-----------------------|--|------|
| | (A) | (B)* |
| 1930..... | 187† | 187 |
| 1929..... | 180 | 175 |
| 1928..... | 185 | 181 |
| 1927..... | 188 | 187 |
| 1926..... | 140 | 139 |
| 1925..... | 117 | 117 |
| 1924..... | 106 | 106 |
| 1923..... | 74 | 74 |
| 1922..... | 70 | 70 |
| 1921..... | 46 | 46 |
| 1920..... | 32 | 32 |
| 1919..... | 33 | 33 |

*The volume figures are not strictly comparable for all years. The *Chronicle* basis of classification was changed, and as a result certain investment, trading, and holding company issues are included in years prior to 1930. In Column B these issues are eliminated from the years 1926-1929. The year 1930 now appears appreciably in the lead over 1928 and 1929, and about equal in volume to 1927, which to date has the largest total of public utility financing.

†These investment, trading, and holding company issues were also eliminated in 1930 returns.

were 56% of the total for the first six months and 68% from July 1 to December 1. This increased importance of debt issues naturally means that the other component, stock issues, was less important during the second half of the year. The extent of the decrease is considerable, for stock issues constituted about $\frac{1}{3}$ of the total for the first half of

TABLE III. PERCENTAGE OF PUBLIC UTILITY FINANCING IN TOTAL CORPORATE FINANCING

| Year | Percentage |
|--------------------|------------|
| 1919..... | 16.87% |
| 1920..... | 16.75 |
| 1921..... | 28.07 |
| 1922..... | 31.90 |
| 1923..... | 35.21 |
| 1924..... | 39.85 |
| 1925..... | 36.41 |
| 1926..... | 37.26 |
| 1927..... | 40.90 |
| 1928..... | 33.97 |
| 1929..... | 24.34 |
| 1930 | |
| 1st quarter..... | 48.40 |
| 2nd quarter..... | 42.80 |
| 1st 6 months..... | 45.41 |
| 3rd quarter..... | 47.10 |
| 1st 9 months..... | 45.74 |
| 1st 11 months..... | 46.34 |

the year and but 1/10 of all financing for the next five months.

New and Refunding Capital. A development following the crash of last October was a marked decline in the relative importance of refunding operations. During the first nine months of 1929 over 20% was used for refunding, while in the last quarter only 6% was so classified. This increased significance of new capital issues apparently continued in the current year, for during the first

TABLE IV. PERCENTAGE OF STOCK, LONG-TERM DEBT, AND SHORT-TERM DEBT IN PUBLIC UTILITY FINANCING, 1919-1930.*

| Period | Stock | Debt | Long-Term Debt | Short-Term Debt |
|--------------------|-------|-------|----------------|-----------------|
| 1919..... | 7.8% | 92.2% | 37.6% | 54.6% |
| 1920..... | 12.1 | 87.9 | 43.9 | 44.0 |
| 1921..... | 18.7 | 81.3 | 70.5 | 10.8 |
| 1922..... | 30.8 | 69.2 | 64.5 | 4.7 |
| 1923..... | 23.0 | 77.0 | 71.3 | 5.7 |
| 1924..... | 34.1 | 65.9 | 57.5 | 8.4 |
| 1925..... | 31.8 | 68.2 | 59.5 | 8.7 |
| 1926..... | 24.7 | 75.3 | 69.9 | 5.4 |
| 1927..... | 28.5 | 71.5 | 66.8 | 4.7 |
| 1928..... | 37.2 | 62.8 | 57.7 | 5.1 |
| 1929..... | 58.7 | 41.3 | 37.6 | 3.7 |
| 1st quarter..... | 58.1 | 41.9 | 40.4 | 1.5 |
| 2nd quarter..... | 40.6 | 59.4 | 52.7 | 6.7 |
| 3rd quarter..... | 78.6 | 21.4 | 18.1 | 3.3 |
| 1st 9 months..... | 60.9 | 39.1 | 35.5 | 3.6 |
| 4th quarter..... | 34.2 | 65.8 | 60.8 | 5.0 |
| 1930 | | | | |
| 1st quarter..... | 24.2 | 75.8 | 68.4 | 7.4 |
| 2nd quarter..... | 49.0 | 51.0 | 42.8 | 8.2 |
| 1st 6 months..... | 36.7 | 63.3 | 55.5 | 7.8 |
| 3rd quarter..... | 9.2 | 90.8 | 76.0 | 14.8 |
| 1st 9 months..... | 31.2 | 68.8 | 59.6 | 9.2 |
| October..... | 13.9 | 86.1 | 57.4 | 28.7 |
| November..... | 3.4 | 96.6 | 36.1 | 60.5 |
| 1st 11 months..... | 29.4 | 70.6 | 58.7 | 11.9 |

*Computed from summary of government and corporate financing, *Commercial and Financial Chronicle*. Foreign and investment trust issues eliminated.

11 months only 8% of the issues were used for refunding (Table V).

Table VI shows a classification of the public utility capital flotations, first by purpose of issue (new or refunding capital) and then by type of issue (long- or short-term debt or stock issues). This information is useful in suggesting whether the last year has witnessed any change in the type of issue being used to raise new or refunding capital. Stock issues are observed to be still of much more significance in raising new than refunding capital. This is true of all

TABLE V. PERCENTAGE OF NEW AND REFUNDING CAPITAL IN PUBLIC UTILITY FINANCING 1919–NOVEMBER 30, 1930.*

| Period | Percentage of New Capital | Percentage of Refunding Capital |
|--------------------|---------------------------|---------------------------------|
| 1919..... | 60.3 | 39.7 |
| 1920..... | 77.0 | 23.0 |
| 1921..... | 73.3 | 26.7 |
| 1922..... | 74.1 | 25.9 |
| 1923..... | 78.0 | 22.0 |
| 1924..... | 86.7 | 13.3 |
| 1925..... | 86.7 | 13.3 |
| 1926..... | 81.3 | 18.7 |
| 1927..... | 69.5 | 30.5 |
| 1928..... | 71.5 | 28.5 |
| 1929 | | |
| 1st quarter..... | 79.0 | 21.0 |
| 2nd quarter..... | 76.8 | 23.2 |
| 3rd quarter..... | 77.3 | 22.7 |
| 1st 9 months..... | 77.8 | 22.2 |
| 4th quarter..... | 93.6 | 6.4 |
| 1930 | | |
| 1st quarter..... | 96.4 | 3.6 |
| 2nd quarter..... | 94.6 | 5.4 |
| 3rd quarter..... | 84.2 | 15.8 |
| 1st 9 months..... | 93.2 | 6.8 |
| October..... | 54.2 | 45.8 |
| November..... | 99.8 | 0.2 |
| 1st 11 months..... | 91.8 | 8.2 |

*Taken from summary of financing, *Commercial and Financial Chronicle*.

periods since 1919. Thus far in 1930 almost $\frac{1}{3}$ of the new capital has been raised by stock issues, while less than 7% of the refunding capital was so raised.

In the raising of both new and refunding capital, stock issues are much less important today than they were last year. During the first three quarters of 1929, $\frac{2}{3}$ of the new and $\frac{3}{5}$ of the refunding capital came from stock issues. It will be noted in this connection that the stock issues declined severely in the case of refunding capital where the percentage of stock fell from 41% for the first three quarters of 1929 to 6.7% for the first 11 months of the current year, whereas the new capital percentages of stock were 66.7 and 31.5 respectively. The figures showing stock used in raising new and refunding capital indicate that 1930 has resembled very closely the average conditions from 1921 through 1926.

Stock Financing. Only two additional phases of stock financing will be considered here: (1) the type of stock used in raising capital (whether preferred or common), and (2) the method used in selling stock (whether by means of stock "rights" given stockholders or by some other method).

The relative importance of common and preferred stocks in new capital is-

TABLE VI. COMPARISON OF PERCENTAGE OF DEBT AND STOCK FINANCING IN NEW AND REFUNDING CAPITAL FOR VARIOUS PERIODS, 1919–1930*

| | New Capital | | | | Refunding Capital | | | |
|---------------------------|-------------|----------|----------------|-----------------|-------------------|----------|----------------|-----------------|
| | Stock | All Debt | Long-Term Debt | Short-Term Debt | Stock | All Debt | Long-Term Debt | Short-Term Debt |
| 1919–1920..... | 13.8 | 78.3 | 48.0 | 38.4 | 2.1 | 97.9 | 25.1 | 72.8 |
| 1921–1926..... | 32.5 | 67.5 | 61.2 | 6.3 | 8.3 | 91.7 | 81.2 | 10.5 |
| 1927–1929..... | 48.5 | 51.5 | 47.4 | 4.1 | 20.0 | 80.0 | 74.4 | 5.6 |
| 1928–October 1, 1929..... | 53.7 | 46.3 | 43.0 | 3.3 | 29.2 | 70.8 | 65.8 | 5.0 |
| 1929..... | 63.6 | 36.4 | 33.9 | 2.5 | 40.2 | 59.8 | 51.6 | 8.2 |
| 1st 3 quarters..... | 66.7 | 33.3 | 31.1 | 2.2 | 41.0 | 59.0 | 50.7 | 8.3 |
| 4th quarter..... | 35.9 | 64.1 | 59.0 | 5.1 | 9.2 | 80.8 | 87.7 | 3.1 |
| 1930: 1st quarter..... | 25.1 | 74.9 | 68.7 | 6.2 | .... | 100.0 | 61.0 | 39.0 |
| 2nd quarter..... | 50.5 | 49.5 | 41.1 | 8.4 | 23.7 | 76.3 | 70.2 | 6.1 |
| 3rd quarter..... | 10.6 | 89.4 | 73.7 | 15.7 | 1.9 | 98.1 | 88.0 | 10.1 |
| October..... | 24.3 | 75.7 | 75.7 | .... | 1.1 | 98.9 | 34.9 | 64.0 |
| November..... | 3.4 | 96.6 | 36.0 | 60.6 | .... | 100.0 | 100.0 | .... |
| 1st 11 months..... | 31.5 | 68.5 | 57.9 | 10.6 | 6.7 | 93.3 | 66.9 | 26.4 |

*Computed from monthly summary of financing, *Commercial and Financial Chronicle*.

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SUMMARIES OF RESEARCH

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TABLE VII PERCENTAGE OF PREFERRED AND COMMON STOCK IN TOTAL PUBLIC UTILITY STOCK ISSUES,
1929-1930

| | Number of Issues | | Volume of Financing | |
|------------------|------------------|-----------|---------------------|-----------|
| | Common | Preferred | Common | Preferred |
| 1929..... | 57% | 43% | 73% | 27% |
| 1st quarter... | 57 | 43 | 56 | 44 |
| 2nd quarter... | 52 | 48 | 55 | 45 |
| 1st 6 months... | 55 | 45 | 55 | 45 |
| 3rd quarter... | 61 | 39 | 90 | 10 |
| 1st 9 months... | 57 | 43 | 72 | 28 |
| 4th quarter... | 60 | 40 | 82 | 19 |
| 1930 | | | | |
| 1st quarter... | 61 | 39 | 85 | 15 |
| 2nd quarter... | 50 | 50 | 73 | 27 |
| 1st 6 months... | 54 | 46 | 77 | 23 |
| 3rd quarter... | 15 | 85 | 12 | 88 |
| 1st 9 months... | 49 | 51 | 73 | 27 |
| October..... | 40 | 60 | 48 | 52 |
| November.... | 20 | 80 | 18 | 82 |
| 1st 11 months... | 46 | 54 | 72 | 28 |

sues is revealed by Table VII. A comparison of the number and volume percentages shows that common stocks are a much larger part of the total financing than the number of such issues would suggest. Thus to date in 1930, 72% of

total financing was by means of common stocks, whereas but 48% of the issues were common stock issues. This difference is attributable to the relatively larger size of common stock issues compared with preferred stock issues. Another tendency is the greatly increased importance of preferred stocks during the latter part of 1930, both as to the relative amount and the relative number.

Finally, preferred stock issues seem to be more common in 1930 than they were during the first three quarters of 1929, but they are of no greater relative importance, as measured by volume of financing. It was hoped that this comparison would suggest something definite regarding financing practices in a speculative period. Common stocks did reach 90% of the total during the third quarter of 1929. During the first quarter of 1930 common stocks constituted 85% of the stock financing but since then they have decreased in significance. The increasing relative number and decreasing relative volume of preferred stock issues in 1930 suggest an increasing number of

TABLE VIII. PERCENTAGE OF TOTAL PREFERRED AND COMMON PUBLIC UTILITY STOCKS OFFERED TO STOCKHOLDERS, 1929-1930.*

| | Number of Stock Issues | | | Volume of Stock Financing | | |
|------------------|----------------------------|--------------|-----------------|----------------------------|--------------|-----------------|
| | Percentage of Total Number | Common Stock | Preferred Stock | Percentage of Total Volume | Common Stock | Preferred Stock |
| 1929..... | 40% | 67% | 5% | 74% | 92% | 26% |
| 1st quarter... | 55 | 56 | 5 | 66 | 81 | 48 |
| 2nd quarter... | 39 | 71 | 6 | 54 | 96 | 2 |
| 1st 6 months... | 36 | 61 | 6 | 62 | 86 | 32 |
| 3rd quarter... | 46 | 72 | 6 | 86 | 96 | 2 |
| 1st 9 months... | 40 | 65 | 6 | 73 | 92 | 27 |
| 4th quarter... | 45 | 75 | 0 | 79 | 97 | 0 |
| 1930 | | | | | | |
| 1st quarter... | 44 | 73 | 0 | 81 | 81 | 0 |
| 2nd quarter... | 43 | 73 | 13 | 71 | 97 | 1 |
| 1st 6 months... | 44 | 73 | 9 | 74 | 96 | 1 |
| 3rd quarter... | 14 | 100 | 0 | 12 | 100 | 0 |
| 1st 9 months... | 44 | 74 | 7 | 27 | 96 | 1 |
| October..... | 20 | 50 | 0 | 44 | 92 | 0 |
| November.... | 0 | 0 | 0 | 0 | 0 | 0 |
| 1st 11 months... | 35 | 70 | 6 | 70 | 96 | 1 |

*Original data from the *Commercial and Financial Chronicle*, Record of Security Flotations

smaller issues as compared with the common stock issues.

Method of Sale of Stock. In noting the effect of speculative activity on stock financing an interesting point is the extent to which companies attempt to sell stock to stockholders by means of "stock rights." The prevalence of this method of financing is shown for both common and preferred stock in Table VIII.

An obvious conclusion from the record of the two years is that rights are much more significant in common than in preferred stock financing. Thus for 1930, 70% of the common stock issues were offered to stockholders, compared to but 6% for preferred stocks. This generalization is borne out for every quarter for which data are presented.

In the case of common stocks, generally speaking, the larger issues are offered to stockholders. Thus 70% of the issues in 1930 were so offered, but these issues constituted 96% of the volume of common stocks. The reverse seems to be true in preferred stocks, particularly in 1930, when the 6% of the issues offered to stockholders included only 1% of the volume of financing. A large issue in the first quarter of 1929 is an exception to this generalization.

Stock rights were used, on the average, more frequently and for a larger part of the total common stock financing in 1930 than in the first three quarters of 1929. Almost 3/4 of these issues and 92% of such financing were offered from January 1 to September 30, 1929, compared with 70% of the issues and 96% of the volume in 1930. Stockholders' subscriptions were confined to the second quarter of 1930 in the case of preferred stocks. But 1% of preferred stock financing was offered stockholders in 1930; over 25% was thus offered in 1929.

Price of Debt Capital. Debt capital cost, as measured by the yield to the in-

vestor, decreased slightly during the year (Table IX). The price of capital varies from month to month, but the general movement was toward lower levels. It will be noted that the simple average yields exceed the weighted average yields consistently. This indicates that

TABLE IX. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW ISSUES OF DEBT OBLIGATIONS OF PUBLIC UTILITIES, BY HOLDING AND BY OPERATING COMPANY GROUPS.

| Year | Weighted Average Yield | | | Simple Average Yield | | |
|--------------------|------------------------|-----------|---------|----------------------|-----------|---------|
| | All Issues | Operating | Holding | All Issues | Operating | Holding |
| 1919..... | 6.57 | 6.53 | 6.67 | 6.68 | 6.63 | 6.89 |
| 1920..... | 7.43 | 7.40 | 7.63 | 7.62 | 7.58 | 7.95 |
| 1921..... | 7.14 | 7.09 | 8.15 | 7.50 | 7.46 | 8.05 |
| 1922..... | 6.08 | 5.99 | 6.68 | 6.32 | 6.26 | 6.83 |
| 1923..... | 5.99 | 5.92 | 6.58 | 6.30 | 6.27 | 6.56 |
| 1924..... | 5.97 | 5.86 | 6.50 | 6.13 | 6.08 | 6.40 |
| 1925..... | 5.59 | 5.48 | 5.78 | 5.83 | 5.77 | 6.09 |
| 1926..... | 5.52 | 5.38 | 5.90 | 5.70 | 5.64 | 5.90 |
| 1927..... | 5.22 | 5.13 | 5.38 | 5.58 | 5.50 | 5.80 |
| 1928..... | 5.26 | 5.09 | 5.39 | 5.58 | 5.41 | 5.79 |
| 1929..... | 5.35 | 5.08 | 5.75 | 5.95 | 5.73 | 6.25 |
| 1st quarter..... | 5.47 | 5.50 | 5.46 | 5.89 | 5.83 | 5.96 |
| 2nd quarter..... | 5.00 | 4.82 | 5.99 | 5.97 | 5.83 | 6.19 |
| 3rd quarter..... | 5.86 | 5.57 | 6.08 | 6.20 | 5.53 | 6.56 |
| 4th quarter..... | 5.40 | 5.19 | 6.53 | 5.84 | 5.56 | 6.45 |
| 1930..... | | | | | | |
| January..... | 5.30 | 5.12 | 5.67 | 5.53 | 5.45 | 5.69 |
| February..... | 5.58 | 5.50 | 5.44 | 5.83 | 5.71 | 6.44 |
| March..... | 5.81 | 5.64 | 5.87 | 5.72 | 5.55 | 5.88 |
| 1st quarter..... | 5.42 | 5.24 | 5.77 | 5.70 | 5.59 | 5.91 |
| April..... | 5.31 | 5.26 | 6.45 | 5.74 | 5.69 | 6.45 |
| May..... | 5.19 | 5.21 | 5.18 | 5.51 | 5.44 | 5.66 |
| June..... | 5.59 | 5.38 | 5.67 | 5.65 | 5.40 | 6.04 |
| 2nd quarter..... | 5.29 | 5.25 | 5.31 | 5.62 | 5.53 | 5.88 |
| 1st 6 months..... | 5.36 | 5.24 | 5.50 | 5.66 | 5.56 | 5.90 |
| July..... | 5.15 | 4.99 | 5.57 | 5.34 | 5.18 | 6.01 |
| August..... | 5.49 | 5.00 | 5.66 | 5.87 | 5.00 | 6.44 |
| September..... | 4.97 | 4.83 | 5.45 | 5.12 | 5.08 | 5.31 |
| 1st 9 months..... | 5.09 | 4.93 | 5.58 | 5.31 | 5.12 | 5.93 |
| October..... | 5.28 | 5.13 | 5.51 | 5.55 | 5.42 | 5.91 |
| November..... | 4.60 | 4.57 | 5.50 | 5.13 | 5.01 | 6.50 |
| 1st 11 months..... | 5.07 | 5.05 | 5.11 | 5.39 | 5.26 | 5.55 |
| | 5.24 | 5.09 | 5.48 | 5.31 | 5.37 | 5.86 |

larger issues are sold at somewhat higher prices than are the smaller issues.

There is little uniformity in the relative movements of the yields on holding and operating company issues. If the simple average yield is more indicative of general conditions, then (1) operating companies have had an advantage over holding companies in every month of 1930 (Table IX), and (2) have bettered their position by getting somewhat lower yields. The first of these conclusions, however, is much more certain than the second.

ROY L. REIERSON

Comments on Legislation and Court Decisions

The Supreme Court Views the Economics of the Telephone System

THE United States Supreme Court is not ordinarily addicted to very upsetting sentiments, but its views in *Smith et al. v. Illinois Bell Telephone Co.*¹ come rather close to this class of doctrine. Certainly the opinion is likely to produce consternation in the legal offices of many of our large holding companies and to give accountants a new crop of gray hairs. To be sure, the opinion is in a sense *pendente lite*, for the cause was remanded to the lower court for further findings and by the time the litigation is ended the views expressed may prove more of a dud than a bombshell. Nevertheless, the economic implications of an unanimous opinion which requires more than casual apportionments of property, revenues, and expenses to intrastate business; asks findings of the costs to a management company of serving one affiliated operating company and the net earnings of a manufacturing company from its dealings only with other units of the same system; asserts that excessive depreciation reserves can be taken into account in determining rates for the future; and directs findings of a rate of return for one operating company with due consideration of economies attained by its operation as part of an integrated system, are challenging to say the least. Moreover, scattered through the opinion are heartening words in support of more vigorous state regulation. One can

safely say the opinion is destined for wide comment if for no other reason than that its tenor and timeliness obviously suggest, as one periodical has already recalled,² Mr. Dooley's slightly malicious but sage comment about the Supreme Court "following the election returns."

It is not my purpose to review the distinctly legal aspects of the opinion, which can be more ably handled by others;³ but some of the economic aspects of the opinion are appropriately, though all too briefly, reviewed in this *Journal*. Five topics warrant comment: (1) the Court's attitude toward the fusion of corporate entities in holding company systems; (2) apportionments between interstate and intrastate business and between corporate units of a system; (3) depreciation; (4) the rate of return; (5) the Court's view of the proper province of state regulation.

The case arose from an order of the Illinois Commerce Commission in 1923, reducing rates on certain classes of telephone service. Enforcement of the rate was restrained by an interlocutory injunction, with provision for refunds of excess charges, but the suit was not brought to final hearing until 1929. By the time the statutory, three-judge court announced its decision, early in 1930, the amount set aside for refunds amounted to over \$11,000,000, and the respective rights of customers and Com-

¹ 51 Sup. Ct. 65 (1930).

² *New Republic*, December 17, 1930.

³ See forthcoming article in *Columbia Law Review* (February, 1931) by David E. Lilienthal, of the Chicago Bar.

pany in this fund, as well as the constitutional validity of the Commission's rate order, were involved in the case. The District Court decided substantially in the Company's favor, whereupon counsel for the City and the Commission appealed to the Supreme Court.⁴ What excites these comments is the instructions accompanying the high court's return of the case for further findings.

Corporate Structure. The intercorporate complexities of many holding company systems have bewildered or embarrassed not only judges, lawyers, commissioners, and economists but also investors and consumers. Criticisms on this score have been many. Indeed the City in this case contended that the parent company, on account of its power to control the operating company, was the real plaintiff in the case. This view was rejected in both courts. Not only did the high court say that corporate entities should be respected, notwithstanding need for close scrutiny of relations among them, but, in another part of the opinion, the separate incorporation of the operating company appears to be viewed as an aid to state regulation. It will be interesting to watch for any influence these views may have upon the re-alignments now going on within and between holding companies.

Apportionments. The Court's instructions regarding apportionments may well make accountants squirm. In reality three types of apportionments were required: (1) separation of the property and business of the Illinois company in interstate and intrastate operations; (2) isolation of the net earnings of the Western Electric Company derived from its dealings with companies under common control; (3) determination of the cost to the American Telephone and

Telegraph Company of services rendered to the Illinois company.

On the first-named apportionment, neither the lower court nor the commission made such a separation, but the City claimed that the share of interstate toll revenue going to the Illinois company did not fully reimburse that company. "This contention," said the Court, "can not be dismissed simply on the basis of the number of interstate calls originated by subscribers of the Illinois company in Chicago, without considering other factors of time and labor entering into the relative use." In the apportionment of property, the Company attributed to intrastate service the entire investment in subscribers' stations and facilities to the toll switchboard or trunk line; yet, as counsel for the City contended and the Supreme Court recognized, this part of the investment is indisputably used for interstate communication. Hence,

"While the difficulty in making an exact apportionment of the property is apparent, and extreme nicety is not required, only reasonable measures being essential, it is quite another matter to ignore altogether the actual uses to which property is put. It is obvious that, unless an apportionment is made, the intrastate service to which the exchange property is allocated will bear an undue burden—to what extent is a matter of controversy. We think that this subject requires further consideration, to the end that by some practical method the different uses of the property may be recognized and the return properly attributable to the intrastate service may be ascertained accordingly." (pp. 9-10)

What basis should be used for dividing the investment, revenues, and expenses between the two classes of traffic is a nice problem of economics and accounting. The only clues offered by the Court are time and labor. Probably these factors will bulk large in the final computation, but in any event the task

⁴Some novelties in the City's arguments, in both courts, form a subject in itself.

is an unenviable one, though the reasonableness of the requirement is not open to question unless perchance the cost of making the computation overshadows the significance of the results obtained.

While it is hazardous to jump from one state of facts to another, the possible application of this ruling to other situations prompts speculation. Interconnected electric and natural gas companies have increasingly enlarged the scope of their interstate operations. Should these companies now set about refining their segregations of property and business within each state? In these fields of enterprise such apportionments may perhaps be less frequently needed, but in one respect the task is somewhat more difficult—namely, the indistinguishable blending of domestic and out-of-state electricity and gas. However, to follow this analogous situation in all its ramifications would lead us unprofitably far afield.

The other two types of apportionments are not only more unusual but apply more obviously to other types of utility services. Hitherto, when relations of Bell subsidiaries to the Western Electric Company have been considered, a showing that Western Electric prices were lower or not higher than other manufacturers' prices was deemed sufficient evidence of the reasonableness of payments to the Western Electric from co-affiliates. If this were not enough, then the average profit of Western Electric on all its business was shown to be moderate. Both these points were regarded as insufficient by the Supreme Court. Instead, the Supreme Court directed findings

"as to the *net* earnings of the Western Electric Company realized in *that* [manufacturing for licensees of Bell system] department and the extent to which, if at all, such profit figures in the estimates upon which the

charge of confiscation is predicated." (p. 12) (Italics mine).

Apparently what is required is a segregation of expenses and revenues occasioned by the Western Electric's dealings only with those of its customers who are licensed parts of the Bell system. Especially noteworthy is the fact that *net* earnings are called for; presumably this will necessitate getting at the costs of serving as manufacturing agent for Bell companies, including some apportionment of Western Electric's overhead expenses to that portion of its business involving units of the Bell system.

The management contracts between the A. T. & T. Co. and its subsidiaries have been scrutinized in many cases, but heretofore payments under these contracts have been deemed reasonable after showing the *value* of the services rendered and/or that the operating companies would have paid as much or more for equivalent services if furnished independently. Now, however,

"there should be specific findings by the statutory court with regard to the *cost of these services to the American Company* and the reasonable amount which should be allocated in this respect to the operating expenses of the intrastate business of the Illinois company in the years covered by the decree." (pp. 15-16) (Italics mine).

Again the requirement of finding costs is a noteworthy departure from previous practice. In addition, the costs sought are not total costs of serving all subsidiaries but the year-to-year cost of serving one company, including an apportionment of that cost to the intrastate business only.

To the present writer this is a new emphasis in judicial regulation. What does it mean? Can it be that the Court apparently intends to find out whether or not these contracts between affiliated

companies (including the Western Electric transactions) effect a reasonable sharing of the economies of system control and operation between shareholders and consumers?

The required cost apportionments are indeed complicated, but are they insoluble problems? Telephone company officials assert such segregations are impossible except in a very approximate manner. How can a company that gives advice, sometimes only on request, to companies scattered over the country, isolate the cost of its service to one particular company or one class of business of that company? Grant that this task is exceedingly difficult, the writer believes it is not much more puzzling than some of the cost allocations offered by the companies themselves, for example, in support of service charges.

In this connection, a statement by the writer on another occasion⁵ offers possibly a practical way out:

"If, without too great accounting and time-keeping expense, management company costs could be divided into (1) readiness-to-serve expenses, treated on a retainer-fee basis, (2) other unapportioned overhead expenses, allocated among subsidiaries on some convenient basis, perhaps gross revenues, and (3) direct expense, definitely traceable to particular subsidiaries, a commission (or court) might come as close to a direct cost of service test of management fees as it is probably possible to come."

Depreciation. A few years ago the Supreme Court said that excessive accumulations of depreciation reserves were stockholders' property and could not be used to support confiscatory rates.⁶ In the instant case the Commission had reduced the annual depreciation appropriation by about \$1,800,000, and this deduction had been disapproved by the statutory court without making any

finding of the proper annual allowance. Until action has been taken by the Interstate Commerce Commission following its investigation of depreciation, such findings, the Supreme Court said, should be made. But in making these findings, the former doctrine of the Court apparently is not to be too rigidly interpreted, for "the recognition of the ownership of the property represented by the reserve does not make it necessary to allow similar accumulations to go on if experience shows that these are excessive." While this ruling may help avoid some of the undesirable consequences of the Court's former, sweeping decision, it still leaves unsolved the proper treatment of excessive depreciation reserves when a reproduction cost valuation is used for determining the rate-base.

Rate of Return. The ruling on the rate-of-return question is rather obscure, but a hint is given that may forecast a somewhat different handling of this problem in the future. The lower court did not determine what would be a proper rate of return, though the return allowed by the Commission was declared inadequate. As the Supreme Court viewed the problem, the point at issue was whether the reduced rates would occasion a loss on *intrastate* business amounting to confiscation. Hence, the lower court was required to find the rate of return for this portion of the Company's business. Such a finding might prevent use of losses on interstate business as proof that rates prescribed for intrastate business are confiscatory.

The hint, though it is little more than a faint suggestion between the lines, has far-reaching implications. Despite the fact that the lower court was directed to use the standard for determining the rate of return laid down in the Bluefield

⁵ Address at University of Minnesota Conference on Governmental Relationships, July, 1930.

⁶ *Board of Public Utility Commissioners v. New York Telephone Co.*, 271 U. S. 23 (1926).

case,⁷ Mr. Justice Hughes made the following two statements:

"In determining what is a confiscatory regulation of rates, it is necessary to consider the actual effect of the rates imposed in the light of the utility's situation, its requirements and opportunities . . . It is evident that in the present case we are not dealing with an ordinary public utility company, but with one that is part of a large system organized for the purpose of maintaining the credit of the constituent companies and securing their efficient and economical management."

The first of these sentences emphasizes the often-neglected fact that a confiscatory rate of return may vary with each case and from time to time. The second sentence, following immediately the classic quotation from the Bluefield case, which involved, be it noted, an independent company, suggests that confiscatoriness be judged in the light of the economies of system control and operation. Does this mean that a rate of return should be found which fairly shares the financial and operating economies of holding company control between the parent company and each of its subsidiaries, and through them with customers? If so, the import of the ruling is momentous, for clear-headed and resolute handling of this central problem of holding company regulation has been notably lacking. On the other hand, it is difficult to see how this problem can be handled without considering the capital structure of each utility and each company in a system, a view urged upon the Court by counsel for the City but not specifically accepted by the Court.

State Regulation. From several angles the adequacy of state regulation has been questioned of late, and proposals for federal regulation of electric utilities, motor carriers, and holding companies

have been agitated in Congress. The last elections, moreover, are interpreted in many quarters as making a national issue of utility regulation, with the division of authority between state and federal agencies occupying a spotlight position on the stage. Opposition to further federal regulation has come from at least two sources—the state commissioners and the utility companies themselves. At this juncture, therefore, the attitude of the Supreme Court toward state authorities is especially of first-rate importance.

Unmistakable encouragement of state commissions is scattered throughout Mr. Justice Hughes' opinion. As stated above, the segregation of interstate and intrastate aspects was stressed in all the problems discussed. The reasons for this emphasis were thus expressed:

"The separation of the intrastate and interstate property, revenues, and expenses of the Company is important not simply as a theoretical allocation to two branches of the business. *It is essential to the appropriate recognition of the competent governmental authority in each field of regulation. The proper regulation of rates can be had only by maintaining the limits of state and federal jurisdiction,* and this cannot be accomplished unless there are findings of fact underlying the conclusions reached with respect to the exercise of each authority . . ." (Italics mine).

Again in speaking of the complexities introduced by holding and management companies, the Court is distinctly heartening to state officials.

"If a single individual or corporation, having a number of technical staffs, engaged directly in local public services within several states, *each state would be entitled to regulate the transactions within its own domain according to its own conception of public policy,* provided there were no infringement of the fundamental rights guaranteed by the Federal Constitution, and, if the latter were invoked by reason of the action of any State, it would still be necessary to consider the local enterprise separately and to make

⁷ *Bluefield Waterworks and Improvement Company v. Public Service Commission*, 262 U. S. 679 (1923).

whatever apportionments were necessary in that view." (Italics mine).

This seems like a fairly forthright invitation to state commissioners to act more vigorously in dealing with management contracts, and if this is the result, Mr. Justice Hughes' opinion may one day rank as a *Magna Charta* for rejuvenated commission activity in this phase of regulatory problems.

The capstone of the support of state agencies is found in that part of the opinion dealing with depreciation. The language speaks for itself:

"As the Interstate Commerce Commission has not acted finally in the matter, we are not called upon to consider the scope of its authority in relation to depreciation charges, but we are of the opinion that, in any event, until action has been taken which could be deemed validly to affect the amount to be charged to depreciation in connection with intrastate business so as to affect intrastate rates, the prerogative of the State to prescribe such rates, and the jurisdiction and duty of the statutory court in considering their validity to determine the amount properly allowable for depreciation in connection with the intrastate business, are not to be gainsaid."

In short, the authority of state commissions is not foreshortened by incipient federal action.

Recognizing fully the tendency of laymen to stretch the intent of judicial language, the protection, if not strengthening, of state regulation seems a reasonable inference from these quotations. Protecting state authority, in the field of intercorporate relations at least, happens to be the conservative position at the moment—an attitude in keeping with the Court's tradition. On the other hand, if state commissioners use the encouragement apparently held out by the Court, a strengthening of state authority seems likely to result in those areas of regulation where these officials have lately appeared uncertain of the scope of their powers, especially when federal action is threatened. This effect may, through the "ripening processes of time," outweigh in significance the detailed requirements concerning apportionments, depreciation, and rate of return.

E. W. MOREHOUSE

Book Reviews

Barnes, Irston R. **PUBLIC UTILITY CONTROL IN MASSACHUSETTS.** *New Haven: Yale University Press, 1930.* pp. x, 239. \$3.

Any study of public utility regulation today is bound to attract attention because we are now experiencing another wave of criticism of our regulatory policies. A study of Massachusetts methods is particularly in point, not only because that state was one of the innovators of commission regulation, but also because it has used more or less unique methods of control throughout its history. The Commission in this State is frequently cited as an illustration of the application of the investment theory of valuation and on this account, also, a study of its practices deserves critical study and wide publicity.

Dr. Barnes has given a meticulous account of Massachusetts regulation, yet it leaves the reviewer with mingled feelings of pleasure and disappointment. Very properly Dr. Barnes treats the control of security issues and the control of rates as integrated processes. In the first half of the book are traced the detailed statutory provisions regarding these two subjects. In the last half of the book the author deals with the opinions of the Commission and a critical appraisal of the methods and principles used by the Massachusetts Commissions. He concludes (1) that the investment theory, as usually understood, has not been consistently used in Massachusetts, though the regulatory practices resemble that theory more closely than the reproduction cost theory; (2) that Massachusetts Commissions have flouted the law of the land, as declared by the United States Supreme Court; and (3) that, from the public's standpoint, the Massachusetts Commissions deserve censure for the vagueness and indefiniteness of their methods of regulation.

The book has at least three distinct merits. The first is the emphasis upon the legislative planning of regulation as found in the statutes. In this respect Massachusetts has leaned more in the direction of detailed statutory provisions than most other states. A second merit is the emphasis upon control of security issues. This phase of regulation began so early in Massachusetts that most of the capitalization of utility companies has come under the scrutiny of some of the suc-

cessive regulating commissions. The result has been to place the Commission in a favorable situation for disregarding in rate cases the inventory and appraisal of assets which predominantly characterize control of rates in other states. The third merit of Dr. Barnes' book lies in the criticism of the investment standard of valuation. In some quarters there is a disposition to regard this theory as the cure-all of many of our most serious regulatory problems. Even though one adheres to this general policy, it is healthy to have some of the loopholes pointed out.

Despite these achievements a few shortcomings of Dr. Barnes' work warrant mention. The treatment of the rate-base problem has both a crescendo and a diminuendo movement. Through two-thirds of the book one feels that Dr. Barnes is about to make some very worth-while analyses of the investment standard of valuation. Then the diminuendo movement sets in. The impression finally gained is that the Massachusetts Commission is on the wrong track because it has not followed in rate cases the policy of making an inventory and an appraisal of assets with due deference to what the United States Supreme Court has said about reproduction costs. Certainly the assumption that this Court has ordained one and only one method of arriving at non-confiscatory rates is questionable. It is believed that a careful reading of the Supreme Court's opinions will disclose considerable room for experimentation with different methods of ascertaining non-confiscatory rates. When the capitalization of utility companies has been controlled as long as in Massachusetts, does a commission deserve condemnation if it uses the expeditious method of finding a rate-base on the liabilities side of the balance sheet instead of the cumbersome, time-consuming inventory and appraisal of assets, and recognizes changing prices and managerial efficiency and ethics in the rate of return? The reviewer, at least, does not agree that a commission's work is blameworthy solely because it does not appear rigidly to conform to certain principles. The tasks of regulation are too complex to be put in a strait-jacket.

A final point of criticism is that the author

has overlooked some of the finer points of regulation as practiced in Massachusetts, those practices being quite consistent with the commissioners' attitude that effective regulation calls for flexible, practical business judgment. For example, Dr. Barnes seems to have minimized the Commission's incomplete power over rates until 1927, as well as the significance of the Commission's audit of capital expenditures when security issues are petitioned; and misinterpreted the attitude toward, and treatment of, reinvested surplus and the rate of return. It is believed that these misapprehensions are attributable to a failure to explore further the economic background of some of the particular cases relied upon. To this extent Dr. Barnes has failed fully to appreciate the very practical philosophy of public utility regulation in Massachusetts.

E. W. MOREHOUSE

SIMPSON, HERBERT D. *TAX RACKET AND TAX REFORM IN CHICAGO*. Chicago: The Institute for Economic Research, 1930. pp. xix, 287. \$2.50.

When a magazine writer some months ago undertook to catalog the "rackets" of Chicago he overlooked what is probably the greatest of them all—the "tax racket." The omission impressed Dr. Simpson who has had occasion to see tax racketeering from the inside for about four years. Tax critics have never lacked words with which to describe the failures of our tax system (and there have been plenty everywhere), but it remained for Chicago to develop a dramatic tax situation and for Professor Simpson to find a dramatic phrase to describe it.

Tax Racket and Tax Reform in Chicago is entertaining throughout and gives the lie to anyone who says that taxation literature must be dull and uninteresting. But it is more than entertaining—it is a worthy contribution to the literature of taxation, politics, history, and economics.

Recent economic studies have run rather heavily to pure fact-finding. Perhaps this is a reaction from the old economics which was of the deductive "arm-chair" variety. Dr. Simpson's book represents a happy medium. The author has examined a concrete situation and has intimately experienced what he is writing about. But his book is a book of ideas as well as of facts. He has worked out the implications and the causal background of his factual data. And he has not hesitated

to recommend a program. In the opinion of the reviewer this is economics of the most productive sort.

The book is divided into three parts entitled "Tax Racket," "Tax Relief," and "Tax Reform." The first is an analysis of the Cook County assessments from 1923 to 1927. It is based on a comparison of the sales prices of 6,645 items of real estate, with the values of these items as recorded by the assessors. The results are put in simple, yet comprehensive form and they are very striking. They show, among other things, an average deviation from the average assessment of from 37 to 49%. The taxes based upon the assessment of 1927 would have confiscated \$30,000,000 from one group and distributed this sum gratuitously to another.

In a chapter entitled "Social and Economic Ingredients of the Tax Situation in Chicago" the author attempts to psychoanalyze his patient. He is at his best in this chapter. We shall not attempt to list the various elements in the "complex" which Dr. Simpson uncovers. In one place he quotes the Speaker of the Illinois Assembly to the effect that it would be utterly unreasonable to ask a Republican legislature to abolish Republican boards and offices. This says the author, may be true but in that case "the taxpayers of Chicago are in for some sad experience during the next fifty years, and the Lord only can help them; it may be doubted whether he will find it 'politically expedient' to do so."

After his indictment of the assessments and the analysis of causes of their inequalities, the author gives a narrative of the events leading up to and during the reassessment. Although he is very modest about his own role in these events, it is apparent that his researches and his attempts to get them to the people played no small part in this episode of Chicago's financial history. His account of the strategy used is especially interesting. "In a nutshell the strategy consisted merely in getting the facts of the problem, getting the facts to the public, crystallizing the results in the form of definite public opinion, and focusing this public opinion upon the governmental agency concerned. After all, this is about the sum and substance of statesmanship in a democracy."

The results of the reassessment are appraised by the same methods used in testing the original assessments. The reassessment,

while not perfect, wiped out about half of the inequalities of the earlier valuations. It demonstrated that even Chicago can have a non-political and business-like assessment.

The final division of the book is devoted to a discussion of "Tax Reform." Certain improvements in the machinery of assessment are recommended as fundamental. Among other things the responsibility for the assessment should be centralized in the hands of a single assessor appointed by the President of the County Board. This individual should replace the present elected and irresponsible Board of Assessors. Certain changes in the tax laws are also proposed. The attempted assessment of certain kinds of tangible personal property, such as household furniture, tends to make the property tax regressive and this property should be exempt. A low-rate tax as a method of reaching intangible property is considered and rejected as a tax upon honesty. The individual and corporate income taxes are recommended to replace the property tax on both intangible personal property and "corporate excess."

Specific points in the discussion of the reform program might be criticized. For example, after showing that the property tax on intangible personal property is a tax upon honesty because it depends upon voluntary listing for its administration, the author does not show that the income tax, which he recommends instead, is not open to the same objection. Furthermore, the statement is made that "both theoretical analysis and factual studies indicate conclusively that mortgage taxes are shifted in substantial entirety to the borrowers in the form of higher interest charges, so that taxes fail completely in their purpose of taxing the owner of intangible wealth." To the reviewer this statement seems too strong, particularly when supported by references to the study of Thomas S. Adams, published in the *Third Biennial Report of the Wisconsin Tax Commission, 1907*. The Adams study stated that "the mortgage rate has displayed an inertia

and stability hitherto unsuspected by a majority of the students of the problem" and that generalizations had been far too sweeping on both sides of the question. The study was later referred to by a member of the Wisconsin Tax Commission as proving precisely the contrary of Dr. Simpson's statement. Many people feel very keenly that the ownership of intangible property is usually accompanied by large ability to pay taxes. They will desire a fuller and clearer explanation than Dr. Simpson gives of how this ability may be reached either under the property tax or indirectly through the income tax.

In general, however, the recommendations impress the reviewer as entirely sound and he would like to commend especially the observation that the income tax should not be distributed to localities on the basis of income taxes collected. Experience in Wisconsin is tending more and more to emphasize both the importance and the wisdom of this recommendation.

Although the book is intended, according to its author, as "an epistle to Chicagoans," it will prove reassuring to those who are trying to make and maintain improvements in the tax system in other states. Wisconsin, for instance, has maintained a relatively impartial assessment of property and a state income tax for 20 years in the face of eloquent pleading that this policy made it impossible for Wisconsin industries to compete. It will come as a distinct tonic to tax morale in this state to learn that the system of favoritism in assessments is being attacked by powerful groups in Illinois; and that, whereas the people of Illinois were suspicious and antagonistic toward an income tax four years ago, a substantial revolution in public opinion has occurred since then.

Reassuring also is the knowledge that one institution of higher learning is devoting much attention to the study of a concrete problem at its doorstep.

HAROLD M. GROVES

Book Notices

Bye, Raymond T., and Hewett, William H.
APPLIED ECONOMICS. New York: Alfred A. Knopf, 1928. pp. x, 655. \$3.75.

This is primarily a textbook written to show that economic theory has practical

applications. It is intended not to oust but to supplement general economic texts. In subject-matter the authors attempt no innovations; in arrangement they follow the "time-honored" division into consumption,

production, exchange and distribution, and add a section entitled "comprehensive programs of economic policy." The economic principles applied are in the main those of the present-day interpreters of classical economics. The authors frankly admit that they are not specialists in the several subjects treated and hence they disclaim doing more than present the gist of current thought in these subjects.

Consumption is treated as the guide to industry with considerable reliance on Patten, Kyrk, and Stuart Chase. Both production and exchange problems are dealt with from the standpoint of the promotion of efficiency. The chapters dealing with production problems lean heavily on the industrial engineers' analyses of waste and scientific management, and concentrate attention chiefly on manufacturing industry and on labor relations in those industries. The inclusion of two or three sections on the tendency toward bankers' control of industry indicates the authors' desire to be up-to-date. But it is difficult to understand the almost total neglect of agriculture.

Readers of this *Journal* will be most interested in the discussion of land and public utility problems. Treatment of the former problems is thoroughly unsatisfactory. In addition to the slighting of agriculture—

cooperative marketing and agricultural credit receive some attention—the problems of urban land utilization are virtually ignored except to illustrate the concept of unearned increment. The chapters on the relation of government to industry deal mostly with trust and unfair competition problems and with public utilities; zoning, city planning, and related topics are missing. As for the rent of land, the Ricardian theory is the "accepted explanation" and is therefore applied, with the result that land ownership performs no social function, though land rent distributes land among its various uses, and rent is an unearned increment which should be limited by appropriate measures short of the full single-tax program.

Public utilities are, on the whole, well treated though somewhat summarily, as is necessary in a book of this kind. A separate chapter is devoted to the regulation of public utility rates in which the authors theoretically favor the reproduction cost standard of valuation, though admitting its practical difficulties. The shortcomings of commission regulation are duly noted in the chapter on government regulation and ownership, but the position taken is that our system of regulation should be improved rather than that we should return to legislative regulation, or go over to public ownership.

E. W. MOREHOUSE.

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